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كلية الدراسات العليا

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نموذج رقم (١٦)
اقرار والتزام بالمعايير الأخلاقية والأمانة العلمية وقوانين الجامعة الأردنية وأنظمتها وتعليماتها لطلبة الدكتوراة

أنا الطالب: رولا حسني ابراهيم [illegible] الرقم الجامعي: (٩٠٨٠٠٦١)
تخصص: التمريض الكليـــــة: الدراسات العليا / التمريض

عنوان الاطروحة: "تأثير بيئة العمل التمريضي والرضى الوظيفي للممرضين على نوعية الرعاية التمريضية المقدمة من وجهة نظر المرضى".

اعلن بأنني قد التزمت بقوانين الجامعة الأردنية وأنظمتها وتعليماتها وقراراتها السارية المفعول المتعلقة باعداد اطروحات الدكتوراه عندما قمت شخصيا" باعداد اطروحتي وذلك بما ينسجم مع الأمانة العلمية وكافة المعايير الأخلاقية المتعارف عليها في كتابة الأطروحات العلمية. كما أنني أعلن بأن اطروحتي هذه غير منقولة أو مستلة من أطاريح أو كتب أو أبحاث أو أي منشورات علمية تم نشرها أو تخزينها في أي وسيلة اعلامية، وتأسيسا" على ما تقدم فانني أتحمل المسؤولية بأنواعها كافة فيما لو تبين غير ذلك بما فيه حق مجلس العمداء في الجامعة الأردنية بالغاء قرار منحي الدرجة العلمية التي حصلت عليها وسحب شهادة التخرج مني بعد صدورها دون أن يكون لي أي حق في التظلم أو الاعتراض أو الطعن بأي صورة كانت في القرار الصادر عن مجلس العمداء بهذا الصدد.

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WORK ENVIRONMENT AND NURSES' JOB SATISFACTION ON THE QUALITY OF NURSING CARE PROVIDED

By

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This Dissertation was Submitted in Partial Fulfillment of the Requirements for the Doctor of Philosophy Degree in Nursing

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COMMITTEE DECISION

This Dissertation (The Influence of Jordanian Nurses' Perceived Work Environment and Nurses' Job Satisfaction on the Quality of Nursing Care Provided) was Successfully Defended and Approved on : 8 / 8/ 2011.

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DEDICATION

To my husband, Muhammad Al-Batran in appreciation for his constant love, encouragement and support. You always be with me to cheer me up, share dreams with me, offer a second opinion and fill my life with happiness. I'm truly thankful to have you in my life.

To my children Ahmad and Omar for their love, support and patience.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS OR SYMBOLS

No.	Abbreviations	Definition
1	AACN	American Association of Critical-Care Nursing
2	ANA	American Nurses' Association
3	ANOVA	Analysis of Variance
4	AONE	American Organization of Nurse Executives
5	ICN	International Council of Nurses
6	JNC	Jordanian Nursing Council
7	M	Mean
8	MDG	Millennium Development Goals
9	MMSS	Mueller/ McCloskey Satisfaction Scale
10	MOH	Ministry Of Health
11	NWI-R	Revised Nursing Work Index
12	PES NWI	Practice Environment Scale of Nursing Work Index
13	PPE	Professional Practice Environment
14	r	Pearson Correlation Coefficient
15	RN	Registered Nurses
16	SD	standards deviation
17	WHO	World Health Organization

LIST OF APPENDICES

WORK ENVIRONMENT AND NURSES' JOB SATISFACTION ON THE QUALITY OF NURSING CARE

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ABSTRACT

Aim: The aim of this study was to investigate the influence of perceived nursing work environment and nurses' job satisfaction on the quality of nursing care among different health sectors in Jordan.

Background: Nursing in Jordan is facing different challenges of increasing demands on health care services associated with shortage of experienced and females registered nurses and increased turnover rates; which make quality nursing care debatable. Nurses are not the only responsible for quality nursing care; factors related to nursing work environment and nurses' job satisfaction are expected to have influence on quality nursing care.

Methods: Descriptive, correlational design was used. The Practice Environment Scale of the Nursing Work Index, SERVQUAL and Mueller/McCloskey Satisfaction Scale were used to collect data from a convenience sample of 408 registered nurses from different public, educational and private hospitals.

Results: The participants of this study agreed generally on moderate levels in nursing work environment (2.55), nurses' job satisfaction (2.78) and quality nursing care (2.87). Significant statistical differences were found among the three health sectors. Nurses' satisfaction with control and responsibility, nursing foundation for quality of care, satisfaction with praise and recognition, satisfaction with professional opportunity, rotating shift work and daily census were accounted for around 59% of the variance of quality nursing care.

Conclusion: The results suggested that quality nursing care could be improved if nurse managers and policy makers take in considerations factors related to nursing work environment and nurses' job satisfaction. The results of this study have wide application in nursing practice, education, administration and research.

CHAPTER 1

Introduction

Background

Worldwide health care systems are facing great challenges of limited resources and increasing demands on health care services. Continuous increases in demand with ineffective supply; increased costs of care; and massive use of technology and innovations have created new changes in the meaning and the process of providing quality nursing care (International Council of Nurses (ICN), 2007; Mason, Leavitt, & Chaffee, 2005).

Providing quality nursing care is the main goal for most health care organizations. Quality nursing care is measured against organizational standards, and it is reflected through specific indicators such as: mortality rates, readmissions, incidence reports and length of stay in hospitals (American Nurses' Association (ANA), 2000; McGillis Hall & Doran, 2007; Needleman et al. 2002; Mrayyan, 2004). Although many health care organizations have developed quality improvement programs, few organizations have considered nursing contribution to the quality of health care (Duffy & Hoskins, 2003; Mason, Leavitt, & Chaffee, 2005). However, since the problem of nursing shortages was raised; the quality of nursing care has become a concern for most health care organizations, researchers, and professionals (Al Maaitah & Shokeh, 2009; ICN, 2007; Mason, Leavitt, & Chaffee, 2005; WHO, 2006). Nursing shortage has been related to various causes but mostly to poor nursing work environment that is found in different work places (Al Maaitah & Shokeh, 2009; ICN, 2007). That is; work overload, poor staffing, poor nurse–physician relationship, increase work hazards and poor autonomy and control over practice might lead to nurses' burnout, dissatisfaction, and high

turnover, and this will negatively affect the quality of nursing care provision (Al Maaitah & Shokeh, 2009; ICN, 2007).

On the other hand, positive work environment or favorable environment is reflected through "positive organizational traits"; organizational characteristics that positively empower nurses to use their knowledge, behaviors, and skills to provide effective and efficient nursing care (Aiken & Patrician, 2000; Mrayyan, Mudallal, Hamaideh, 2010).

Various initiatives have been made to investigate the nursing work environment. Lake (2002) defined the nursing work environment construct as the work environment characteristics that facilitate or limit professional nursing work. As well, the report issued in 2003 by The American Organization of Nurse Executives (AONE) highlighted the main factors that are needed to provide positive work environment, namely: leadership development and effectiveness, empowered collaborative decision making, innovations in work design and service delivery, values-derived organizational culture, recognition and reward system, and professional growth and accountability. According to the report a work environment with these characteristics is called the Professional Practice Environment (PPE). Hospitals with PPE have low nurses' turnover rate and they have the ability to attract nurses to work in them, so they are called "magnet hospitals" (Aiken & Patrician, 2000). The main goal of magnet hospitals is to provide a work environment for nurses that enhance safety, job satisfaction, and decreases burnout and turnover, and consequently improve the quality of nursing care and organizational outcomes (Kramer, & Schmalenberg, 2004a &b; Lacy, et al. 2007).

Job satisfaction is a direct organizational outcome that reflects the affective orientation of the employee toward their job (Price, 2001). Job satisfaction is influenced by different psychological, cultural, economic and management factors (Herzberg, 1959; McNeese- Smith, 1999). Among various factors that influence job satisfaction,

work environment characteristics explained 39% of the variance of job satisfaction (Laschinger, Shamian, and Thomson, 2001). In addition, job satisfaction has a great influence on nurses' decisions to stay or leave the job (Mrayyn, 2007; Tzeng's, 2002). In turn, job satisfaction has a significant influence on quality of nursing care (Kwak, Chung, Xu and Eun-Jung, 2010; Mrayyan, 2006).

Nursing in Jordan -like other countries- is facing different challenges, such as: changes in the health care system, increase in the annual turnover rate among Jordanian nurses, which leads to shortage in skillful, experienced nurses and a young nursing workforce. Many factors have resulted in the nursing shortage in Jordan. Slow salary increases for nurses, the fact that fewer females are selecting nursing career, a decrease in the number of nursing faculty, and unattractive work conditions are factors contributed to the decline of nurses' numbers in Jordan (AbuAlRub, 2006; Al-Ma'aitah, Cameron, Armstrong-Stassen, & Horsburgh, 1999; Al Maaitah & Shokeh, 2009). Thus, it is important to ensure that hospitalized patients are receiving quality nursing care.

Actually, this is the first Jordanian study that tries to highlight factors in the work environment which may enhance nurses' job satisfaction and improve the quality of care. Also, the required changes in the health care environment in Jordan could be accelerated if nursing researchers provide evidences for policy makers about the influence of organizational traits and nurses' job satisfaction on the quality of nursing care.

Problem Statement

Shortage among healthcare providers is a major concern worldwide. According to Aiken, Clarke, Sloane, Sochalski and Silber (2002), each additional patient per nurse with a four patient caseload is associated with a 7% increase in the likelihood of dying within 30 days of admission, and a 7% increase in the odds of failure to rescue.

Actually, high patient to nurse ratio does not only have a negative impact on patient outcomes but also affects the nurses who are at higher risk of emotional exhaustion, stress, job dissatisfaction and burnout. Hence, creating and maintaining a work environment that supports and retains nurses is a key for improving the quality of healthcare.

Jordan is facing a tremendous development in health care services. The number of hospitals is counted for 106 in 2010 as compared to 97 in 2003 and the number of hospital beds increased from 9743 in 2003 to 11779 beds in 2010 (Ministry Of Health (MOH), 2011). At the same time, the total number of Registered Nurses (RN) in Jordan in 2010 was 14138, compared to 6007 RN in 2003 (MOH, 2011).

To assess the adequacy of this number to the population needs, the international ratios of registered nurses to the number of population was ranged between 20-100 registered nurses per 10,000 of population (as cited in JNC, 2008a). In developed countries such as USA, Canada and Japan this ratio was ranged from 40-70, however, these ratios were not sufficient as these countries are suffering from nursing shortage (as cited in JNC, 2003). In Jordan, the total number of registered nurses workforce was 14,138, with a ratio of 23.1 registered nurses for 10,000 of population (MOH, 2011). Comparing this ratio to the international ratios, Jordan is considered from the countries that has low nurse to population ratio. And by comparing this ratio to the developed countries; Jordan is suffering from severe shortage in nursing workforce.

Despite of the increased number of nurses during the last decade, the nursing sector in Jordan is facing great challenges. These challenges include but are not limited to: high turnover rates; nurses' turnover rate between the years 2003 – 2007 was around 35.9% (Al Maaitah & Shokeh, 2009). An increased population from 5,350,000 in 2004 to 6,099,896 in 2010 (Department of Statistics, 2010) associated with increased life

expectancy to 73 years in 2010 (WHO, 2011) and increased number of people who are suffering from chronic health problems (Al Maaitah & Shokeh, 2009, JNC, 2008a).

Another challenge for the Jordanian health care system is high percentage of male nurses compared to female nurses; according to Al Maaitah & Shokeh (2009) male nurses will constitute 60% of all nurses in 2012. On the other hand, more than 65% of Jordan population are children and women who required female nurses to meet their health needs (Al Maaitah & Shokeh, 2009; Department of Statistics, 2010). This unique characteristic of the nursing workforce adds to the problem of nursing shortage. Actually, the health care system in Jordan suffered from female nurses' shortage with about 3351 during the year 2009 (Al Maaitah & Shokeh, 2009).

Within this situation of experienced nurses' shortage and female nurses' shortage, high turnover rates either related to leaving the profession or migration, and the presence of novice nurses to provide care for hospitalized patients, the quality of nursing care has become questionable. Thus, it is key to recognize factors contributing to nurses' satisfaction and quality of care in Jordan.

Significance of the Study

The world health organization (WHO) report of 2006 addressed the issue of health care provider shortage, specially nurses, and how it will interfere with national and international efforts to achieve the Millennium Development Goals (MDG) to enhance the health and well-being for the global population. The WHO (2006) stressed the importance of implementing strategies to overcome the problem of health care providers' shortage to meet the MDGs and provide quality care.

Moreover, quality of nursing care was categorized as one of the highest priorities for nursing research in Jordan (JNC, 2008b), Therefore this study is expected to increase the understanding of factors that affect quality nursing care. However,

reviewing the national literature the majority of Jordanian studies were mainly directed at job satisfaction, few studies emphasized quality of care and non attempt at relating work environment or nurses' job satisfaction to quality of nursing care. Therefore, this study is unique in nature as it investigates the three phenomena and relates them to one another. Hence, the results are expected to increase the knowledge base in nursing regarding the influence of nursing work environment and nurses' job satisfaction on the quality of nursing care. Furthermore, this study will provide nurses, nurse managers, researchers and policy makers with recommendations to improve nursing work environment, nurses' job satisfaction and quality of nursing care.

Purpose of the Study

The purpose of this study is to investigate the effect of nurses' perception of work environment and nurses' job satisfaction on the quality of nursing care provided at Jordanian hospitals. Also, this study will assess the quality of nursing care among different Jordanian hospitals. It will also help, in identifying the nurses' work environment characteristics needed for improvement.

Research Questions

This study addresses the following research questions:

1. What are the Jordanian nurses' perceptions of their work environment, job satisfaction and quality of nursing care provided at public, private and educational hospitals?
2. What are the relationships between the nursing work environment and nurses' job satisfaction; and quality of nursing care among Jordanian nurses?

3. What are the differences in: nurses' demographics, the department average daily census, model of nursing care provision, and leadership style in relation to nursing work environment, nurses' job satisfaction and level of quality of care?
4. Are there variations across the three health sectors in relation to the perceived nursing work environment characteristics, nurses' job satisfaction and quality nursing care?
5. What is the predictive power of the nursing work environment and nurses' job satisfaction in relation to quality of nursing care?
6. What are the factors that affect quality of nursing care as perceived by Jordanian nurses' at different hospitals?

Conceptual Framework

The conceptual framework of this study is grounded in the Duffy and Hoskins (2003) "Quality-Caring Model" and influenced by both "Herzberg's two-factor theory" and "Maslow's Hierarchy of Human Needs".

Duffy and Hoskins (2003) in their Quality-Caring Model (Figure 1) assumed that the process of providing quality nursing care has three components: structure, process and outcomes. Duffy built her model by incorporating aspects of Donabedian's theory (structure, process, outcome), with particular emphasis on nursing's unique role for improving patient outcomes. The components of the structure influence the processes of quality nursing care. The process part includes both technical and interpersonal activities. Both structure and process parts have direct and indirect influence on quality nursing care outcomes (Duffy & Hoskins, 2003).

By applying factors related to nursing work environment and nurses' job satisfaction, these factors were found to be part of the structure and process of Quality-Caring Model. Lake (2002), categorized the work environment traits that are required

to build PPE to five groups: nurse participation in hospital affairs; nursing foundations for quality of care; nurse manager ability, leadership, and support of nurses; staffing and resource adequacy; and collegial nurse-physician relations (Figure 2). These traits of work environment are depicted as structure and process in the Quality-Caring Model. Hence, work environment is expected to have direct and indirect influence on quality nursing care.

Professional Practice Environment is considered as a prerequisite for quality of care; if positive organizational traits "favorable work environment" are available this will lead directly to high quality nursing care. On the other hand; poor organizational traits are expected to decrease the quality of care levels and so threaten patients' safety (Bogaert et al. 2009; Lacy et al. 2007; McCusker et al. 2004; Mrayyan, 2006).

In addition, Mueller & McCloskey (1990) assumed that job satisfaction includes eight dimensions: extrinsic rewards, scheduling, balance of family and work, co-workers, interaction opportunities, professional opportunities, praise and recognition, and work control and responsibility. Also, by applying these factors to the Quality-Caring Model; these dimensions are depicted as structure and process components of this model, hence it is expected that these dimensions may have an influence on patients outcomes. According to Kwak, Chung, Xu and Eun- Jung (2010); and Mrayyan, (2006) high level of nurses' job satisfaction will lead to quality nursing care, and low level of nurses' job satisfaction will decrease the level of quality nursing care.

On the other hand, job satisfaction is influenced by the ability to fulfill needs. Maslow (1954) described the people actions to fulfill their needs as motivators for work. Needs are hierarchical and lower order needs have to be satisfied adequately before the higher order needs can influence the behavior. Needs are motivators for actions; people feel satisfied to the extent that their needs are fulfilled. Similarly,

Herzberg (1959) proposed that people move to action in order to avoid deprivation (dissatisfaction), but not necessarily reach satisfaction because they may not achieve a sense of psychological growth. Herzberg (1959) thought that people work mainly for two reasons: external factors such as: adequate salary, job security and decent working conditions to avoid physical deprivation, and for internal factors such as achievement, recognition, respect, authority, and status because of the psychological meaning they provide. Both Maslow (1954) and Herzberg (1959) agreed that Managers have a great influence on the physical, social, and psychological aspects of the work environment. Hence, work environment characteristics are expected to be positively related to nurses' job satisfaction; positive characteristics are expected to enhance nurses' job satisfaction; while, poor characteristics may cause burnout and dissatisfaction among nurses (Bogaert et al. 2009; Lacy et al. 2007; McCusker et al.2004; McGillis Hall & Doran, 2007; Mrayyan, 2006).

Based on Herzberg theory (1959) and Duffy and Hoskins "Quality-Caring Model" (2003) personal characteristics of the employee and the manager, and the organizational characteristics have a great influence on both nurses' job satisfaction and quality of nursing care. These characteristics include: nurses' demographics, average daily census, model of nursing care provision, and leadership style. These factors are considered as extraneous variables in this study as they are affecting the level of quality of care and nurses' job satisfaction, and so they need to be controlled. The researcher controlled these variables through design by using homogeneity and blocking.

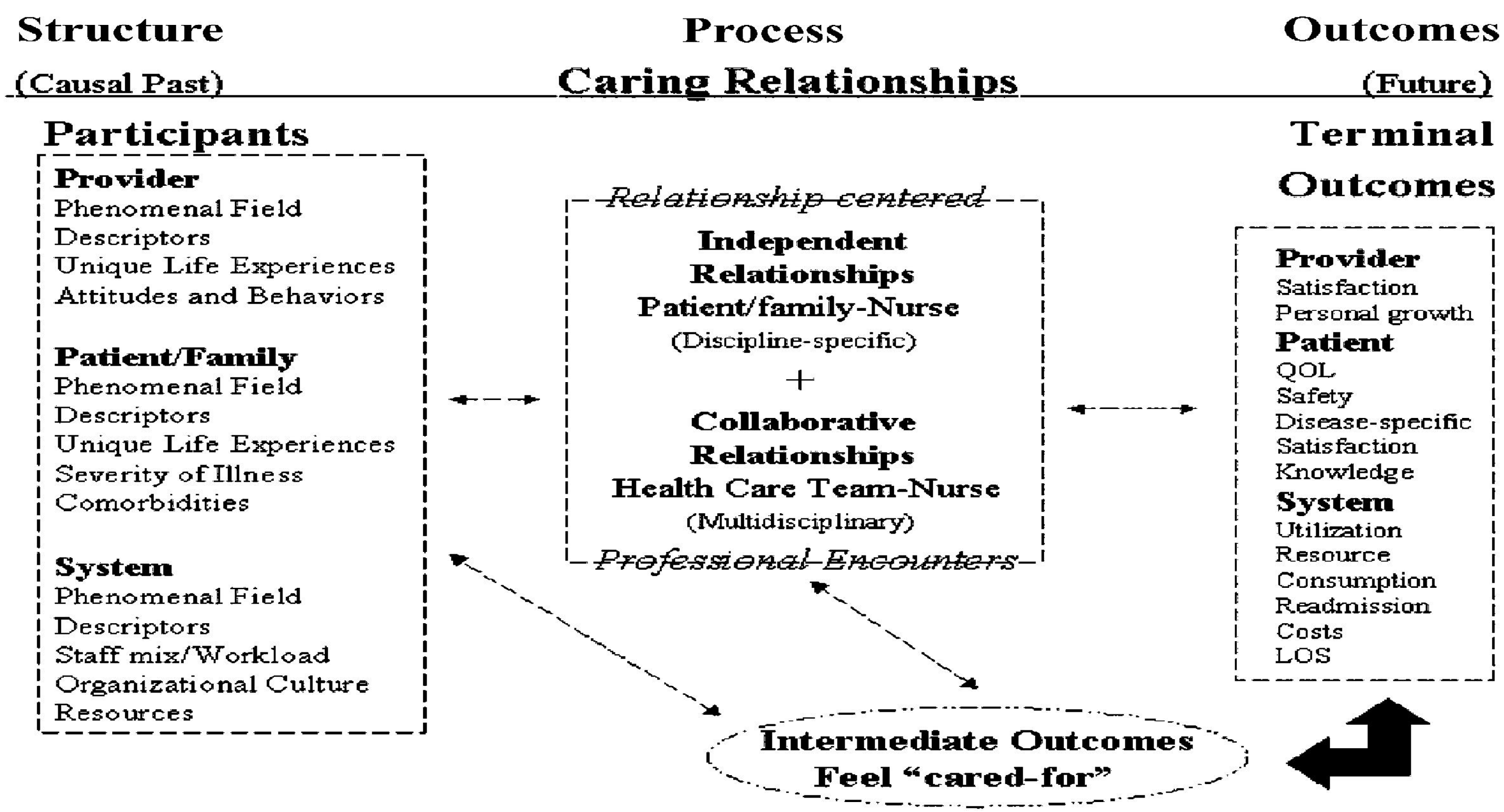


Figure 1: The Quality- Caring Model.

Source: Duffy, J. & Hoskins, L. (2003). The quality caring model building dual paradigm. *Advances in Nursing Science*, 26(1), 77-88.

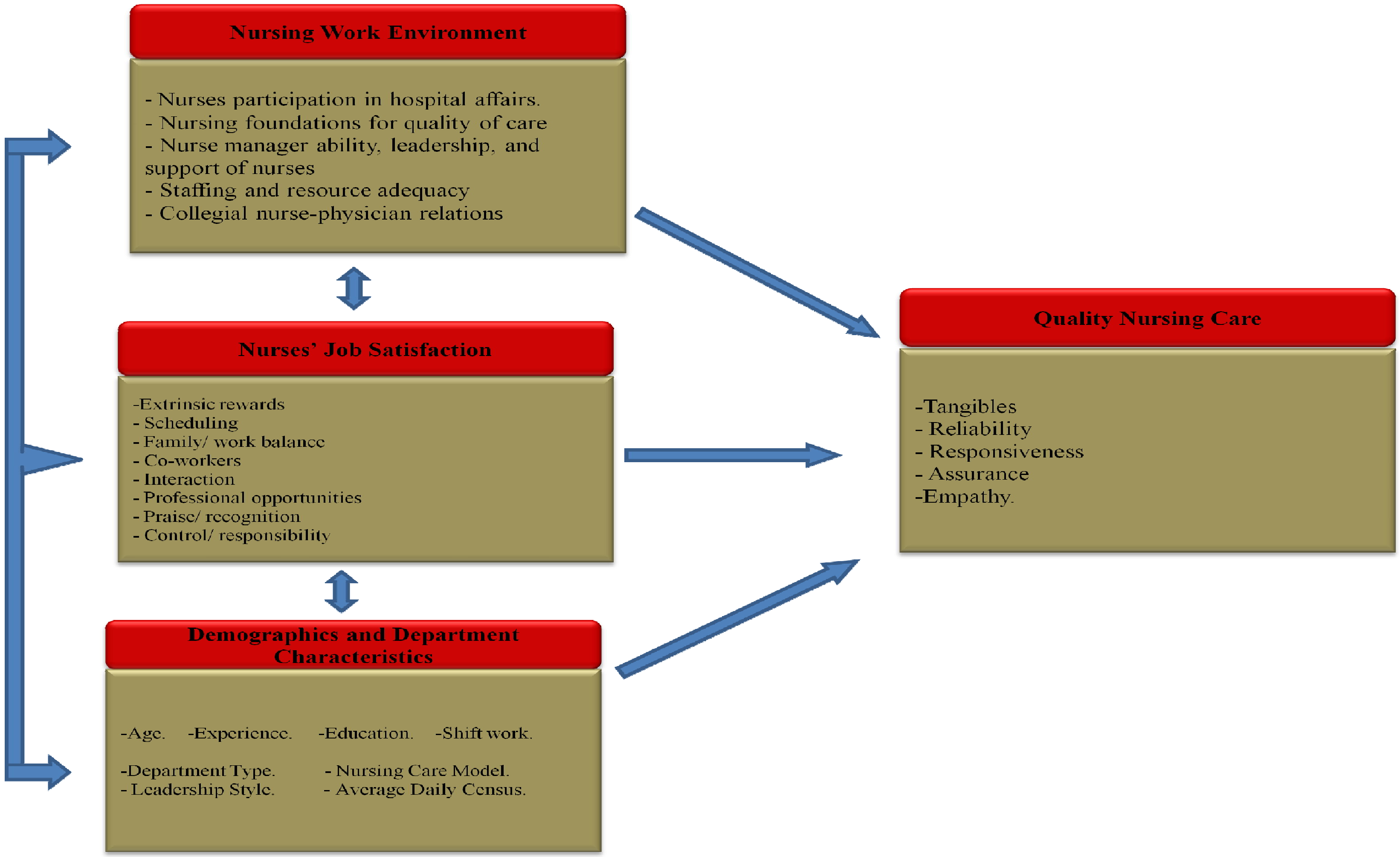


Figure 2: Hypothetical model for the relationship between organizational traits, nurses' job satisfaction and quality of nursing care.
Rola Mudallal
January, 1, 2010

The Study Variables

The study includes three major variables: Nursing Work Environment, Nurses' Job Satisfaction and Quality Nursing Care. Besides, the department and demographic characteristics variables.

Nursing work environment.

Conceptual definition: Work environment characteristics that support or constrain professional nursing practice which in turn affect nurses' job satisfaction and quality nursing care (Lake, 2002; Leiter & Laschinger, 2006; Mark, Salyer & Wan, 2003).

Operational definition: Scores on the Practice Environment Scale of Nursing Work Index (PES- NWI), compromised of 31 Likert scale items to assess five dimensions of the organizational characteristics: nurse participation in hospital affairs; nursing foundations for quality of care; nurse manager ability, leadership, and support of nurses; staffing and resource adequacy; collegial nurse-physician relations.

Nurses' job satisfaction.

Conceptual definition: The degree of affective orientation the employee has toward his or her work (Mueller & McCloskey,1990; Price, 2001).

Operational definition: Scores on the Mueller/ McCloskey Satisfaction Scale (MMSS) that consists of 31 items to measure eight aspects of nurses job satisfaction: extrinsic rewards, scheduling, family/ work balance, co-workers, interaction, professional opportunities, praise/ recognition, and control/ responsibility.

Quality nursing care.

Conceptual definition: The nursing care provided to patient according to the standards and work requirements (Grujic et al. 1989; Zeithaml, Parasuraman & Berry, 1985).

Operational definition: Scores on service quality questionnaire (SERVQUAL). Gap 3 (care specification versus care delivery) the degree to which nurses provided care according to the standards. Scores from the difference between the nurses' expectations of care, and nurses' perception of actual care. The tool composed of 22 likert scale for each part. Items reflect five dimensions of service quality: tangibles, reliability, responsiveness, assurance and empathy.

Nursing care model.

Conceptual definition: the mechanisms for organizing and delivering inpatient care and a method of identifying the boundaries for delegation of authority (Marquis & Huston, 2000).

Operational definition: nursing care models that were used in studied department in jordanian hospitals. In Jordan different nursing care models were identified:

- Total Patient Care: (one nurse is responsible for the holistic care of each patient assigned to her/him)
- Team: (patient care assigned by the in-charge nurse or leader; the nursing team is responsible for holistic patient care)
- Functional: (nurses are assigned to a number of patients on the basis of tasks)
- Unclear

Leadership style.

Conceptual definition: the manner and approach the leader adopted to carry out work activities, provide directions and motivate others. It is based on situation, values and believes, and cultural background (Marquis & Huston, 2000).

Operational definition: the leadership styles that adopted by the first line manager in the studied department. Different leadership styles were adopted by nurse managers in Jordan:

- Autocratic : (manager controls any decision without consulting nurses)
- Democratic: (manager shares decision-making with nurses)
- Delegative: (manager allows the employees to make the decisions, but he/she is still responsible for the decisions that are made)
- Situational: (manager makes decisions with participation of nurses based on situational factors)

Daily census.

Conceptual definition: the average number of inpatients or occupied beds in the department (Marquis & Huston, 2000).

Operational definition: the average number of impatiens or occupied beds in the studied department as reported by nurses.

Summary

This chapter provided an introduction to this study that aimed to investigate the influence of nursing work environment and nurses' job satisfaction on the quality of nursing care among different types of Jordanian hospitals.

Nursing in Jordan as in many other countries is facing different challenges included but not limited to: increasing demands on health care services associated with shortage of experienced registered nurses, shortage of female nurses, increased turnover rates and dramatic and escalating changes in the health care system; which make quality nursing care debatable. Thus, it is important to recognize factors contributing to nurses' satisfaction and quality of care at Jordanian hospitals.

Recent but limited studies revealed positive association between nursing work environment and both nurses' job satisfaction and quality nursing care. Thus, it is expected that, improvement in the nursing work environment is an important factor to improve nurses' job satisfaction and the quality of nursing care, and in turn improve other nurses', patients' and organizations' outcomes. Duffy and Hoskins (2003) "Quality-Caring Model", "Herzberg's two-factor theory" and "Maslow's Hierarchy of Human Needs" were the theoretical guides for this study.

The results of this study could provide evidences for executive nurses, nurse managers and policy makers about the influence of nursing work environment and nurses' job satisfaction on the quality of nursing care. Additionally, this study will contribute to the nursing knowledge base regarding PPE and factors that may have influence on quality nursing care. Also, it has a wide application in nursing practice, education, administration and research, either in Jordan or at the international level.

CHAPTER 2

Literature Review

The quality of nursing care has received increasing attention of nursing leaders and researchers, in as much as nursing shortage became a worldwide challenge, which threatens the quality of nursing care. The study of work environment and nurses' job satisfaction and their individual or collective influence on quality have become a priority.

In this chapter the researcher reviewed the literature and summarized the relevant research related to the nursing work environment, job satisfaction and quality nursing care. Research studies were retrieved from internet databases by searching the PubMed, CINAHL, Wiley production, Sage and Ovid databases. Several key words were used; nursing work environment, professional practice environment, organizational traits, nurses' job satisfaction and quality nursing care. Most studies that linked nursing work environment to nursing outcomes were found to be between 2000 and 2011. However, literature still reveals poverty in studies focusing on factors affecting quality nursing care.

Nursing Work Environment

The recent challenges face the nursing profession worldwide alert nurse managers to the relationship between the nursing work environment characteristics, nurses' job satisfaction and good outcomes.

Researchers used different constructs to measure the work environment: organizational traits, magnetism, nursing practice environment, professional practice environment, favorable environment and social organization of the work. Although, these constructs slightly differ in meaning, they are overlapping and used to reflect the

same phenomenon in all studies. Lake (2002) considered the nursing practice environment as a complex construct to be conceptualized and measured. Furthermore, as organizational characteristics of the hospitals were found to be stable with minimal variations, they were considered traits rather than state characteristics. Hence, the characteristics of a professional practice environment (PPE) as manifested by different researchers and nursing organizations are considered the domain for developing measurement tools.

Professional Practice Environment for nurses was defined by Hoffort and Wood (1996) as "a system that supports registered nurses to have control over the delivery of nursing care and the environment in which care is delivered". This definition implies that the vital components of a PPE are autonomy, accountability, control over the practice environment, direct communication, and authority (Aiken & Patrician, 2000). Hospitals with PPE usually attract nurses to work in; nurses in those hospitals reflects high levels of job satisfaction and low levels of turnover, thus they are called magnet hospitals (Aiken & Patrician, 2000; Kramer and Schmalenberg ,2004a; Laschinger, Almost and Tuer-Hodes, 2003). Magnetism is recognized as a" seal of excellence for organizations that foster not only a positive work environment for nurses, but also, better patient outcomes" (lacy et al. 2007).

The American Association of College of Nursing (2002) identified eight hallmarks for the PPE: manifesting a philosophy of clinical care emphasizing quality, safety, interdisciplinary collaboration, continuity of care, and professional accountability; recognizing contributions of nurses' knowledge and expertise to clinical care quality and patient outcomes; promoting executive level nursing leadership; empowering nurses to participate in clinical decision-making and organizing clinical care systems; maintaining clinical advancement programs based on education, certification, and

advanced preparation; demonstrating professional development support for nurses; creating collaborative relationships among members of the health care team; and utilizing technological advances in clinical care and information systems.

Similarly, Kramer and Schmalenberg (2004a&b), through a series of qualitative studies on 289 staff nurses were working in 14 magnet hospitals. Eight attributes as essential to quality care were generated from participant observation and interviews. These attributes were: support for education; working with other nurses who are clinically competent; positive nurse physician relationship; autonomous nursing practice; a culture that values concern for the patient; control of and over nursing practice; perceived adequacy of staffing; and nurse –manager support.

Lake and Fries (2006) used a cross-sectional analysis for a survey included 156 Pennsylvania hospitals to classify the nursing practice environments in hospitals as favorable, mixed, and unfavorable. They indicated that about 17.3% of the hospitals in the sample they studied were considered favorable for nurses to work in, 72.4% were mixed and 10.3% were classified as having unfavorable environment. Favorable hospitals were significantly higher than mixed hospitals in three aspects; nurse participation in the hospital affairs (2.96 of 4); nursing foundations for quality of care (3.32 of 4); and nurse managers' ability, leadership and support for nurses (2.91 of 4). Unfavorable hospitals were significantly lower than favorable hospitals in all aspects. Lake and Fries (2006) found that RN-bed ratios and teaching status were significant predictors for the work environment. However, practice environment differences were not associated with hospital bed capacity or community size.

Several studies indicated that although, providing positive work environment is an important factor to achieve organizational objectives, the work environment characteristics

are not the same in units and wards of the same hospital. According to The American Association of Critical-Care Nursing (AACN) (2005) and Schmalenberg & Kramer (2007) the structure and processes of units are designed to provide continuous care and easy access to patients. Also, intensive care units are usually supplied with advanced technology, enough and competent nurses to meet the needs of critical patients (AACN, 2005, Mrayyan & Al-Faouri, 2008). Furthermore, processes in units were found to be better; collegial communication, collaboration between health team members, effective decision making and leadership style, beside nursing care model that allow for holistic patient care (AACN, 2005; Boyle, Miller, Gajewski, Hart & Dunton, 2006; Schmalenberg & Kramer, 2007).

In a more recent study, Flynn and McCarthy (2008) investigated the nurses' perception of the characteristics of 11 hospitals in Ireland and compared them with the magnet hospitals in the USA. The researchers used a convenience sample of 368 staff-nurses to collect data using the NWI-R, and 10 nursing directors to complete Haven and Mills Scale to assess nurses' directors' participation in hospital governance. The results revealed that nurses had a moderately positive perception regarding nurse – physician relationship (2.77), autonomy (2.56), organizational support (2.51), and control over environment (2.35). Also, this reflects lower scores on all dimensions of professional practice environment in Ireland hospitals compared with magnet hospitals in USA.

Similarly, the NWI-R was used in a survey of stratified random sample of 478 staff nurses, to assess the Astonian nurses' perception of their work environment characteristics. The results reflected moderate autonomy, control over practice, nurse-physician relations and organizational support. Also, these characteristics were found to be positively correlated with increase age and experience, thus the authors recommend to take these results inconsideration as a tool for staffing decisions at hospital level (Hinno, Partanen, Julkunen and Aaviksoo, 2009).

Jardali, Alameddine, Dumit, Dimassi, Jamal and Maalouf (2011) examined the nursing work environment characterisitics in Lebanon. A total of 1793 registered nurses were surveyed in 69 Lebanese hospitals. The findings of this study revealed critical issues regarding the Lebanese nursing work environment as reflected by low scores obtained on all aspects of the nursing work environment: autonomy (M=2.82), control (M=2.57), nurse/physician relations (M=2.99) organizational support (M=2.76), career development (M=2.77) and participation (M=2.80). Nurses' perceptions were found to be influenced by age, experience and hospital size.

In Jordan, the Revised Nursing Work Index (NWI-R) was used to collect data from a convenience sample of 295 nurses from three types of hospitals: educational, governmental and private. Significant differences were reported between the three types of hospitals as reflected by the means of the subscales. Nurses' autonomy (M=2.40) and control over practice settings (M=2.40) were the highest in teaching hospitals but were the lowest in private hospitals (M=2.30) and (M=2.23) respectively. The nurse-physician relationships (M=2.23) were scored the highest in governmental hospitals and were the lowest in teaching hospitals (M=2.18). Organizational support for nurses was the highest in teaching hospitals (M=2.40) and the lowest in private hospitals (M=2.25) (Mrayyan, Mudallal and Hamaideh, 2010).

In another Jordanian study a comparative research design was used to survey 263 nurses working in 12 units and nine general wards in different Jordanian hospitals. The results revealed that work environment in the general wards were more positive than units in some organizational traits such as: working with "a good" manager and leader (M=2.68), having enough registered nurses to provide quality patient care (M=2.65), having a specialized nurse to provide patient care consultations (M=2.60), having written and up-to-date nursing care plans for all patients (M=2.60) and working with a

supportive supervisory staff (M=2.50). However, no significant differences were reported between units and wards in relation to 'nurse-physician relationship' (Mrayyan, Awamreh and Hamaideh, 2010).

Nurses' Job Satisfaction

Nurses' job satisfaction is a multidimensional phenomenon that refers to how nurses feel about their job. Factors that enhance job satisfaction are varied and do not only depend on the job or the profession itself, but it may also be influenced by the individual expectations, personal characteristics and organizational traits. Measuring nurses' job satisfaction is important as it is reflected on clients' general satisfaction (Mrayyan, 2006; Weisman and Nathanson, 1985) and is considered a main predictor of nurses' turnover (Al-Ma'aitah et al. 1999, Mrayyan, 2007). However, Weisman and Nathan (1985) reported that, it is difficult to measure nurses' job satisfaction in as much as it is related to both economic and social issues, in addition to the variables related to the work environment.

Definition of job satisfaction.

The definition of job satisfaction differs according to the theoretical framework adopted. Conrad, Conrad and Parker (1985) defined job satisfaction as the match between individual perception of their needs and the rewards they perceive from their jobs. This definition was grounded in Maslow's theory of hierarchy of needs (1954) that categorized the human needs into five levels; physiologic, safety, social, ego, and self actualization. Maslow (1954) mentioned that most human actions represent a striving to satisfy needs.

Later, Herzberg (1959) developed the two factors theory of job satisfaction. He recognized that satisfaction and dissatisfaction are not opposite concepts; rather they are

two different phenomena. The satisfaction occurs as a result of motivators or intrinsic factors such as achievement, recognition and responsibility (factors that have psychological meaning). While, job dissatisfaction occurs as a result of extrinsic or hygiene factors such as: organizational policy, working conditions, salary and administration (factors that threat physical needs).

More recently, most researchers have considered job satisfaction as a cognitive process more than behavioral or needs' fulfillment (Spector, 1997). This was reflected by Price (2001) definition of job satisfaction; the affective orientation the employee has toward his or her job.

Factors that influence nurses' job satisfaction.

To understand job satisfaction phenomenon different studies were conducted to determine factors that may lead to nurses' job satisfaction. McNeese- Smith (1999) conducted a qualitative study to explore factors that influence nurses' job satisfaction and dissatisfaction. Semi-structured, audio taped interviews were conducted on a purposive sample of 30 nurses selected from six units in a hospital in California. Based on content analysis the extracted themes were categorized in two groups: factors leading to job satisfaction and factors leading to job dissatisfaction. The first group included two types of factors; first: factors related to actual work and patient care such as: providing good care and recognition; environmental factors as fast moving; and balanced workload. The second type included factors related to nurses characteristics, namely: personal factors; cultural background; nurses' career stage; relationship with co-workers; salary and benefits; and professionalism. McNeese- Smith (1999) identified three factors that lead to job dissatisfaction: factors related to patient care such as abuse from patients, poor care outcomes and fear from making errors; factors that interfere

with patient care including lack of equipment, supplies and specialized services; and feeling overloaded with high acuity patients and insufficient staff. Similar to job satisfaction, the researcher found that some nursing characteristics; career stage; relationship with co-workers; and organizational factors caused job dissatisfaction. Furthermore, the researcher found that satisfied nurses looked to some situations as challenges where dissatisfied nurses consider them as burden.

In 2002, Price used quantitative descriptive design to study job satisfaction of registered nurses working in an acute care hospital and the factors that contribute to nurses' satisfaction and dissatisfaction. The researcher used Maslow's need hierarchy theory as the theoretical framework and the Mueller McCloskey Nurses Satisfaction Scale (MMSS) to collect data from 141 nurses randomly selected using the systematic method. The results revealed that 58% of the nurses were satisfied and 42% were either dissatisfied or undecided. The statistical analysis of the MMSS sub scales revealed that co-workers (M=3.8) and extrinsic rewards (M=3.5) were the main factors contributing to job satisfaction. On the other hand, professional opportunities (M=2.6) and control and responsibility (M=2.7) were the main factors contributing to job dissatisfaction. Annual leave, hours worked, and nursing peers were the highest satisfiers with mean score 4 of 5, whereas, child care facilities, compensation for working weekends, and control over work conditions were the significant dissatisfies with a mean score 2.3 of 5.

Loke (2001) was more specific when she studied the effect of five leadership behaviors (model the way, inspired and shared vision, challenge the process, enable others to act and encouraging the heart) on nurses' job satisfaction, productivity and organizational commitment. Survey questionnaires were used to collect data from 100 registered nurses and 20 managers who were working in a hospital in Singapore. Data

collected included the demographic characteristics, nurses' perceptions of the degree to which the five leadership behaviors were used. In addition, the level of nurse job satisfaction, the degree of productivity and the extent of organizational commitment were measured. The findings showed that the use of leadership behaviors and employee outcomes were significantly correlated. The regression results indicate that 29% of job satisfaction, 22% of organizational commitment and 9% of productivity were explained by the use of leadership behaviors.

In contrast to Loke's (2002) findings, Tzeng's (2002) study conducted in Taiwan on a convenient sample of 648 nurses from different three hospitals indicated that leadership style had no significant influence on job satisfaction ($x^2 = 2.67$, p= 0.10).

The influence of magnet hospital attributes (quality of nursing leadership, management style, personnel policies, autonomy, interdisciplinary relationship and professional development) on nurses' job satisfaction was studied in Germany and Belgium at both hospital and nurses levels (Chen & Johantgen, 2010). A secondary data analysis of 4949 nurses' survey indicated that all studied characteristics were significant predictors of nurses' job satisfaction. Personnel policies were the strongest predictors at the nurses level (β =0.963), followed by management style and interdisciplinary relationship. Whereas management style was the strongest variable affecting job satisfaction at hospital level (β =0.844) followed by professional development and interdisciplinary relationship. The researchers concluded that work environment characteristics have a great influence on nurses' job satisfaction (Chen & Johantgen, 2010).

Besides environmental and personal issues, studies revealed that nurses job satisfaction differ between units and wards. Ingersoll, Olsan, Drew-Cates, DeVinney and Davies (2002) found that nurses in critical care units have higher occupational

stress and lower job satisfaction than do nurses in other sites. Contradictory, nurses reflected better job satisfaction in critical care unites than do nurses working in wards (Kangas, Kee & McKee-Waddle, 1999).

In Jordan, Mrayyan (2005) studied 438 nurses' perceptions of factors that influence nurses' job satisfaction. The results revealed that nurses in Jordan were moderately satisfied (mean= 2.98 out of 4). Nurses in private sector were more satisfied in their job (3.04) than those who work in public sector (2.85). Nurses were more satisfied with their control and responsibility with average of (3.19) in public hospitals and (3.08) in private hospitals. The main predictors of job satisfaction were: shift worked (r =-0.318), marital status (r =0.234), years of experience (r= 0.185), level of education (r =-0.165) and age (r =0.138).

However, different studies reflected variety of factors that may have influence on nurses' job satisfaction such as: organizational commitment, organizational support, leadership style, level of education (Al-Husami, 2008), level of social support (Abu-Arub, Omari & Al-Zaru, 2009) and level of job stress (Abu-Al Rub, Omari & Abu-Al Rub, 2009).

Relationship between job satisfaction and nursing outcomes.

The impact of job satisfaction upon nursing outcomes has been explored in some studies. However, nursing outcomes can be factors related to patient such as patient satisfaction and quality of nursing care, or factors related to nursing such as: burnout, turnover, intention to quit or retention.

The effect of job satisfaction on nurses' burnout, organizational support, nurses' retention and quality of nursing care, have been the focus of several studies. Kalliath and Morris (2002) confirmed that job satisfaction is a significant predictor of burnout through direct and indirect path. They studied the experience of 203 nurses who were

working in a general community hospital in the United States. They used two scales to collect the data; Maslach Burnout Inventory and Job Satisfaction Scale of Katzell et al. The findings showed that job satisfaction had significant negative effect on emotional exhaustion (-0.97), which in turn had a positive effect on depersonalization (0.60). Also, job satisfaction was found to predict depersonalization via exhaustion (-0.58).

Kwak et al. (2010) conducted a cross-sectional survey to examine the influence of job satisfaction on burnout, organizational support and quality of nursing care. A sample of 496 nurses working in medical surgical units from 23 hospitals were asked to complete the Pennsylvania Registered Nurse Survey; this survey included: employment characteristics, the modified version of the Nursing Work Index, the Emotional Exhaustion subscale of Maslach Burnout Inventory, job characteristics, last (work) shift, demographic characteristics and work characteristics. Data were analyzed using logistic regression. Job dissatisfaction was positively associated with total burnout scores (r = .42) and lack of organizational support (r = .36), job satisfaction was positively correlated with quality of care (r = .20). Multivariate analysis indicated that job satisfaction was significantly associated with burnout, amount of organizational support and satisfaction with nurse identity, with odds ratios of .92, 1.04 and 11.93, respectively. Although, Korean nurses included in the study, were highly satisfied, they reported low quality of care in their practice setting.

On the other hand, Mrayyan (2006) conducted a cross-sectional comparative study to describe the relationship between nurses' job satisfaction, patient satisfaction and quality of nursing care. A sample of 200 nurses, 510 patients and 26 head nurses from an educational hospital were asked to complete: Mueller/ McCloskey Satisfaction Scale (MMSS), The Satisfaction Scale with nursing care for Eriksen and Quality of Nursing Care Questionnaire- Head Nurses respectively. The results revealed that nurses were

neither satisfied nor dissatisfied (x = 3) of (5). Also, head nurses reported that nurses provided high quality nursing care (x =3.75) of (5). Although, job satisfaction was correlated with quality of nursing care (0.460), but this correlation was not statistically significant. However, this result may be related to cultural differences, or small sample size that was restricted to only one hospital.

Quality of Nursing Care

Few qualitative and quantitative studies were conducted to identify the meaning of quality nursing care or the process followed by nurses to achieve high quality nursing care. However, the concept of quality is still considered to be the most abused and misunderstood in the health care today (Barnes, Persley, & Walshe, 1994; Duffy & Hoskins, 2003; Glen, 1998; Kunaviktikul et al. 2001 & Zimmermann, 2001) and there are significant variations in its interpretation and usage (Williams, 1998).

Quality of nursing care definition.

The concept "quality nursing care" has different meanings and definitions over the nursing history. Florence Nightingale was the first to recognize the concept "quality" in nursing practice during the Crimean war (Thorsteinsson, 2002). Since that time, different trials were made by researchers and professionals to define and describe the process of providing quality nursing care to improve nursing care and education, and to enhance the life of humans. However, it was difficult to reach consensus regarding this important phenomenon in nursing science, because quality is a social construct affected by the meaning of health, and the people expectations from health care (Koch, 1992). Hence the meaning of quality nursing care differs from one culture to another. It differs also, among patients, nurses and health care organizations (Kunaviktikul et al. 2001 & Zimmermann, 2001).

Glen (1998), found that quality determine different definitions of nursing; that is, the quality of nursing care influenced with how people perceive nursing as a: labor, craft, profession or art. Indeed, this may explain why it was difficult to reach a consensus regarding the interpretation of quality of nursing care; because of different debates in nursing history and continuous development of nursing as a profession.

One of the major works and early initiatives to define quality was that of Zeithaml, Berry and Parasuraman (1988), through which they define service quality as the difference between service provided and standards. This definition found high echo between professionals as it allows for measuring quality objectively. This definition was consistant with Grujic et al. (1989). According to Gunther and Alligood (2002); Parasuraman, Zeithaml and Berry (1985) high quality goes beyond the standards and is the right for all patients. Hence it must be accessible and fairly distributed.

Donabedian (1988) reported that quality is not only the absence of negative outcomes and it is not the level of end products; rather it is a process that has three elements: structure, process and outcomes. Similarly, Williams (1998) conducted a grounded theory study to explore and describe the delivery of quality nursing care from nurses' perceptions. The study revealed that quality nursing care is a process that has antecedents and outputs. This study also, led to describe the process of delivery quality nursing care from the perspectives of 22 acute care nurses in Western Australia. The main focuses of this process were the time available, conditions, quality of nursing care and selective focusing.

Kunaviktikul et al. (2001) conducted a phenomenological, descriptive study to develop a definition of quality nursing care, and to define different indicators to evaluate the care given in acute care setting, from different perspectives. The sample included four hospital directors, four directors of nursing services, four nurse

supervisor, eight head nurses, 24 staff nurses and six patients. The findings revealed differences in definition among targeted groups. Nurse administrators and staff nurses defined quality of nursing care as the behavior of nurses based on nursing science and standards to enhance safety and satisfaction for patients. The directors looked at quality nursing care as the fast, efficient services that are based on standards taking into consideration patients' satisfaction. On the other hand, patients proposed that quality nursing care is having qualified nursing personnel who reflect caring behaviors and responsibility. In addition, the researchers categorized the indicators of quality into three groups: structure, which includes the management, facilities, resources and staff development; process that can be reflected through nursing practice and professional characteristics; and outcomes such as: incidents and complications, clients' satisfaction, satisfaction with information, time, satisfaction with pain management and satisfaction with symptom management.

In another phenomenological study, Thorsteinnson (2002) investigated how individuals with chronic illness perceive the quality of nursing care. The researcher used theoretical sampling to collect data from 11 patients; eight females and three males. Five themes emerged: nurses who provide high quality nursing care, the effects of high quality nursing care, the lack of good quality nursing care, ancillary factors, and the art of being a patient.

Mrayyan (2004) conducted a quantitative study to determine the perceptions of head nurses in Jordan about the variables that influence the quality of nursing care. The results revealed that the time availability was the most important factor that influences the quality of nursing care, in addition high quality required adequate staffing levels.

Evaluation of the quality nursing care.

The process of assessing and evaluating quality nursing care was started early since Nightingale used statistical procedures to correlate patients' outcomes to environmental conditions (Montalvo, 2007; Thorsteinsson, 2002). In addition, many health care institutions have started the quality assurance and quality development programs, but few have focuses on measuring quality nursing care specifically, because of lake of models that explain quality nursing care (Duffy & Hoskins, 2003).

Over the years, the concept quality nursing care has developed and so the process of measuring this concept. Donabedian (1988) developed the first holistic model to understand and measure health care quality. Donabedian's Quality of Medical Care Model consists of three elements: structure (system, care providers and patients characteristics), process (technical and interpersonal styles) and outcomes (clinical end points). Although this model is comprehensive but it is general and lakes elements related to nursing contribution in health care (Duffy & Hoskins, 2003). Recently, Duffy and Hoskins (2003) developed the Quality Caring Model- depending on Donabedian's work with focus on nursing role in all elements of the model.

One of the remarkable efforts was started by the American Nurses Association (ANA) in 1998 when they established the National Database of Nursing Quality Indicators (NDNQI), which aims to identify structure, process, and outcome indicators to evaluate quality nursing care at the unit level (Montalvo, 2007).

Although, quality nursing care is a process; many researchers depends on some outcomes indicators to refer for quality such as: nosocomial infection rates, patient injury rates, mortality rates, pressure ulcers and patient satisfaction during hospitalization (Montalvo, 2007; Needleman, et al. 2002). Researchers in Jordan used patients' satisfaction as an indicator for quality nursing care (Alasad & Ahmad, 2003;

Al-Husban & AbuArub, 2009). The patients in Jordan were moderately satisfied; 72.9% (Al-Husban & AbuArub, 2009) and 77% (Alasad & Ahmad, 2003). The patients were satisfied more with factors related to nurses' competency and skills (Alasad & Ahmad, 2003; Al-Husban & AbuArub, 2009). Whereas, they were dissatisfied with factors related to the time the nurses usually spend with the patients (Al-Husban & AbuArub, 2009) and the type and amount of information the patients received about their conditions and treatment (Alasad & Ahmad, 2003). The researchers agreed that these results are important in the process of improving quality nursing care.

Many studies were conducted to measure the quality of nursing care from the patients' perspectives (Kunaviktikul et al, 2001; Thorsteinnson, 2002). However, the quality of nursing care is a technical term in Jordan that is measured by health care team rather than by patients (Mrayyan, 2004); in as much as, patients don't have enough knowledge about the standards of care to assess quality nursing care, also, organizations, professionals and patients have usually different goals and perspectives (Zimmermann, 2001). Nurses -as the largest group of health care professionals, who spend 24 hours with patients and have different roles supporting patients' care, in addition to suitable knowledge and the ability to recognize fair distribution of care to all patients- are considered the most appropriate to define the process of providing nursing care, because it is the core of their profession, while the meaning of the concept "quality nursing care" can be achieved through interpretation of patients', nurses' and organizations' perspectives (Gunther & Alligood, 2002; Kunaviktikul et al, 2001; Lee, 2005; Zeithaml, Parasuraman & Berry, 1985).

Relationship between Nursing Work Environment, Job Satisfaction and Quality Nursing Care

Different studies investigated the relationship of various organizational traits to nursing outcomes. Laschinger et al. (2001) studied the effect of magnet hospital characteristics on nurses' job satisfaction, trust, perceived quality of care, and burnout among nurses. They used quantitative, ex post facto design to test their hypothesis that nurses who perceived their work environments as having high levels of autonomy, control over practice, and collaboration would have high levels of organizational trust and low levels of burnout. They also thought that these factors would lead to job satisfaction and a perception of high quality care. The data was collected from 3106 nurses from 135 hospitals; most of them have long nursing experience with average of 19.2 years. Four different tools were used in this study; The Nursing Work Index (NWI), The Interpersonal Trust at Work Scale, Human Services Survey (HSS) was used to measure nurses' burnout and the last instrument used to measure job satisfaction and the nurses' perceived quality of care.

Path analyses procedure was used to test the model. In this model, autonomy, control over practice, and collaboration were positively correlated with trust in management (0.56), which was also positively correlated with job satisfaction (0.17). In addition, organizational traits of autonomy, control, and collaboration were negatively correlated with burnout (-0.62), and positively associated with job satisfaction (0.55). These factors explained 39% of the job satisfaction in the model. Furthermore, the results revealed that trust in management was positively correlated with nurses' perceived quality of care (0.34), also, burnout was negatively associated with perceived quality of care (-0.42). This model also had an explained variance of 39% of perceived quality of care.

In addition, McCusker et al (2004) used the PES-NWI tool to measure the effect of organizational traits on the quality of care. Data were collected from 243 nurses who were working in 13 units in a University hospital in Quebec, Canada. Several organizational traits such as: nurse manager ability, resource adequacy, and nurse-physician relationship were associated with the overall quality of care. However, all organizational characteristics that were identified in the PES-NWI tool were significant predictors of nurse reports of high-quality care.

Friese (2005) used the PES-NWI to understand the association between work environment of oncology settings and quality of care, emotional exhaustion and job satisfaction. The results revealed that oncology settings were better in environmental characteristics, quality of nursing care and reflected less emotional exhaustion than non-oncology settings. Staffing and Resource Adequacy was the most effective characteristics in this study; it was a significant predictor for emotional exhaustion, job satisfaction and quality of care. Also, manager ability was significant predictor for job satisfaction ($\beta = 0.81$) and collegial nurse – physician relations was associated with quality of care ($\beta = 0.88$).

The PES-NWI scale was also used to examine the effect of nursing practice environment on different patients' outcomes in surgical oncology settings. After categorizing the environment according to its characteristics; logistic regression models were used to predict the odds of 30- day mortality, complications and failure to rescue. The results revealed that patients in poor practice environments had significantly high odds of death (1.37) and failure to rescue (1.45) (Friese, Lake, Aiken, Silber and Sochalski, 2008).

Similarly, Aiken; Clarke; Sloane; Lake; and Cheney (2008) conducted a study to examine the effect of nursing practice environment on nurses' job satisfaction, burnout,

quality nursing care, but this time they control for nurse staffing and education factors. The nurses in this study who reported more positive job experiences had fewer concerns with care quality. Also, nurses who were working in poor environmental characteristics reflected high level of dissatisfaction (OR= 0.75) and burnout (OR= 0.76). As well, improving the hospital care environment category was associated with lower risks of death and failure to rescue.

Bogaert, Clarke, Vermeyen, , Meulemans, & Heyning, (2009a) conducted a study to examine the relationship between nursing work environment, job outcomes and quality of nursing care. The data were collected from 195 nurses, who were working in 13 Belgian hospitals. They used their developed version of NWI-R to measure the organizational traits. Bogaert et al. found that both "nurse-physician relations" and "nurse-management at the unit level" subscales had a significant prediction effect on nurses' job satisfaction (OR= 7.7 and 3.6 respectively); intention to stay at hospital (OR= 4.4 and 2.3 respectively); and quality of care (OR= 8.5 and 4.4 respectively). While, "hospital management and the organizational support" subscale had a significant positive association with quality of nursing care only (OR= 3.3). These results led Bogaert, Meulemans, Clarke, Vermeyen and Van de Heyning, (2009b) to develop the "nurse practice environment and outcome model" which proposes that burnout has a mediated role between nurse practice environment and nurses' report of job outcomes and quality of care. The NWI-R was used to examine this model; advanced statistics of correlation and logistic regression were used. The model explained 20% and 46% of the variance of job outcomes and quality of care respectively.

Similarly, Duffield et al. (2010) conducted a mix method study (longitudinal with cross-sectional data). Secondary data analysis collected from 2278 registered nurses were working in 80 randomly selected medical-surgical departments from 19 public

hospitals in New South Wales in Australia. The researchers aimed to study the relationship among nursing work environment, nursing skill mix, workload, and different patient outcomes. Using Poisson regression analysis the researchers found that poor patients' outcomes (falls and medication errors) were associated with ineffective staffing (number and mix), increase nursing workload and unstable work environment.

Generally, in most studies that correlated work environment, nurses' job satisfaction and quality nursing care the researchers didn't use valid, reliable and comprehensive tools to measure quality nursing care, they depend on measuring some outcome (Aiken, et al. 2008; Duffield et al., 2010, Friese, et al. 2008), or depending on the part of "nursing foundations for quality of care" subscale of the PES-NWI, which will give spurious high correlation "part-whole correlation" (Bogaert, et al., 2009; Friese, 2005, McCusker et al., 2004), some researchers used general one to four questions about nurses perception of quality nursing care at hospital and unit levels (Aiken, et al. 2008; Laschinger et al., 2001).

Summary

Quality nursing care is a broad term that encompasses the structure, process and outcomes of the nursing process. Providing quality nursing care is the core of nursing profession, less attention has been given to factors that may have direct influence on quality nursing care. Recently, nursing shortage created a great challenge for nursing profession and health care organizations to meet the continuous increase in demand for health care services to keep quality nursing care.

Quality nursing care is a difficult concept to define, however, nurses are considered as the best to define and determine quality of care characteristics as quality of care is the core of their profession. It can be seen as a process that needs antecedent variables such as: effective leadership behaviors, facility, resources and staff development. It

must be carried in disciplined behaviors and skills to achieve high level outcomes of patient satisfaction, low mortality and nosocomial infections, and low readmission rate. Remarkable efforts were spent to understand and measure this important phenomenon in nursing. For years quality nursing care was a subjective concept that it was difficult to measure it objectively; the method of comparing provided care to standards allow for objective measurement. However, reviewing the literature revealed scarcity in valid, reliable and comprehensive tools to measure quality nursing care phenomenon. Researchers depended on outcomes to measure quality nursing care such as: patients' satisfaction, mortality rates, incidence reports and length stay in hospitals (Alasad & Ahmad, 2010; Al-Husban & AbuArub, 2009; ANA, 2000; McGillis Hall & Doran, 2007; Needleman et al. 2002).

The reviewed literature revealed that few studies have tried to link factors related to the nursing work environment and job satisfaction with the quality of nursing care. However, positive work environment was found to be associated with high levels of nurses' job satisfaction and low turnover rate which consequently, promotes patients' satisfaction and quality nursing care (Bogaert Clarke, Vermeyen, Meulemans, & Heyning, 2009; Lacy, Cox, Lorfing, Teasley, Carroll, & Sexton, 2007; McCusker, Dendukuri, Cardinal, Laplante & Bambonye 2004; McGillis Hall & Doran, 2007). The literature also indicated that strong and authentic leadership style is an important factor in developing professional practice environment and enhancing nurses' job satisfaction. Also, nurses' personal characteristics, delivery of care model, daily census rate and unit type were found to have influence on both job satisfaction and quality nursing care.

Reviewing literature revealed high variety between studies in areas related to: measurement; settings; and sampling. Most studies that correlate work environment characteristics to quality nursing care didn't use special valid and reliable tool to

measure quality nursing care. These studies recommended further studies to explore the factors that may have an influence on quality of care in an attempt to improve quality nursing care. Therefore, this study was designed to examine the influence of nursing work environment and nurses' job satisfaction on quality of nursing care. Information about professional practice environment and its influence on nursing outcomes will help nurses to develop strategies to improve work environment, promote nurses' job satisfaction and enhance quality nursing care.

CHAPTER 3

Research Methodology

This descriptive study aimed to investigate the influence of nurses' perception of work environment and nurses' job satisfaction on quality of nursing care provided at different types of Jordanian hospitals. This chapter discusses the research methods and procedures that were used to answer the research questions. The following areas are addressed: design of the study, the study setting, the sample and sampling procedure, ethical consideration, the research instruments, data collection procedures and data analysis.

Study Design

A quantitative approach using descriptive, correlational design was used to study the influence of work environment and nurses' job satisfaction on quality nursing care. The reality in correlational research can be measured objectively through probabilistic evidences using questionnaire instruments to collect data (Polit & Beck, 2008).

This design is considered appropriate for this study; because the aim was to describe relationships among study variables, compare hospitals, and predict factors influence quality nursing care. Also, the study didn't include causal pathway that usually requires experimental design (Polit & Beck, 2008).

Setting

The data was collected from nurses employed at different educational, private and public (MOH) hospitals in Jordan because different types of hospitals provide variety in nursing work environment which might increase the ability to generalize the results regarding the study variables.

The health system in Jordan provides mainly secondary and tertiary health levels in

hospitals through four sectors; public (MOH), privates, educational and military (Al Maaitah & Shokeh, 2009; MOH, 2010). For this study, the data was collected from nurses in public (MOH), privates and educational hospitals; in as much as permission from military system for data collection may need long time. However, there are 30 public (MOH), 61 private and two university-affiliated hospitals (MOH, 2010). Hospitals with the largest capacity (more than 150 beds) were selected, because they affect large number of health service providers and consumers; this made the setting limited to 13 hospitals. One private hospital apologized for participation in this study; hence this study included 12 hospitals.

This study was conducted in hospitals' wards (medical, surgical, pediatrics and maternity), specialized and critical units in hospitals were excluded to control some expected extraneous variables such as: average daily census, model of nursing care provision and leadership style; these factors are part of work environment that may influence nurses' job satisfaction and quality of nursing care, but they differ between wards and units (AACN, 2005; Mrayyan, Awamreh & Hamaideh, 2010 and Schmalenberg & Kramer, 2007).

Sample and Sampling

Sampling method.

The researcher used non-probability quota sampling method; each health care sector was considered a stratum: educational, public (MOH) and private. The number of participants in each stratum was determined using disproportionate sampling method; in as much as the researcher is interested in understanding the differences among strata (Polit & Beck, 2008). The use of proportionate sampling in this study could lead to inadequate number for comparisons. The number of subjects in the three strata was the same; that is, the sample size was calculated, and then divided by three to get the sample size for each

stratum (Table 1). Then the sample was drawn from each hospital using convenience sampling method.

The inclusion criteria were: registered nurses graduated from a four years nursing program, have the ability to read and write in English, with minimum experience of six months at least in the investigated area. The exclusion criteria included: non Jordanian nurses, non registered nurses, registered nurses but with diploma, and nurses had experience more than six months but not in the investigated area; because participant should be familiar with the work environment characteristics.

Sample size.

The sample size was estimated using statistical power procedures. The researcher assumed high power (0.80) to reflect higher precision, small effect size (0.03) with alpha (0.05), and by using Cohen (1988) equation for sample size calculation in multiple regression procedure: $N = L(1 - R^2) \div R^2 + u + 1$, the estimated sample size was 355 nurses. To make the sample more representative and to decrease the threat for external validity the researcher added another 15% for the total number. Thus, the required sample size was around 408 (Table 1). However, 440 nurses were approached; to overcome the problem of uncompleted questionnaires or any missing data. The response rate was around 92.7%.

Table 1

Sample Size

Item Sector	Number of subjects in each stratum	Number of hospitals in each stratum
Public (MOH)	136	6
Educational	136	2
Private	136	4

Ethical Considerations

The researcher used the following procedures to protect the human rights and keep ethical considerations all over the research process:

- The ethical approval to use the instruments was obtained from each instrument developer (Appendix I).
- The University of Jordan Ethical and Research Committees reviewed the dissertation proposal and the study instruments for approval and to make sure that human subjects will be protected.
- The researcher obtained the Institutional Review Board (IRB) approval of each sector. Also, the ethical approval of each hospital - where the study was conducted- was obtained before data collection began.
- Each participant was informed of the purpose of the study and the estimated time needed to fill the questionnaires. Also, participants' human rights were explained and the opportunity to ask questions about the study was explained verbally and through cover letter (Appendix II), the participants were informed of their right to withdraw without penalty at any time.
- The completion of questionnaire was considered as consent for participation in the study.
- To keep anonymity, the questionnaires did not include any information regarding the participant identity. Also, after filling the questionnaire by the participant the questionnaire was coded by numbers and kept in secure place; no one had an access to the data except the researcher and the advisors.

Study Instruments

Three questionnaires were used to measure the study variables: nursing work environment, nurses' job satisfaction and quality nursing care:

The Practice Environment Scale of the Nursing Work Index (PES-NWI).

This scale was developed by Lake (2002), to measure nursing practice environment. The items of the original Nursing Work Index (NWI) were developed from nurses' response to research about magnet hospitals characteristics (Kramer &Hafner, 1989). The sample of items were selected from the domain using three methods: extensive literature review for instruments of job satisfaction and work value, collection of magnet hospital characteristics as reported by the American Academy of Nursing Magnet Hospital study (1984), then the initial instrument was evaluated by magnet hospital researchers (Kramer &Hafner, 1989). The NWI was revised by Aiken and Patrician in 2000 to be NWI-Revised with its 57 items and four subscales: Autonomy; control over practice setting; nurse –physician relationship; and organizational support for nurses (Aiken & Patrician, 2000). However, different psychometric studies were conducted to develop parsimonious, precise and comprehensive version in different countries. Actually, all of the NWI-R versions were found effective in measuring aspects of professional practice environment, or organizational characteristics (Bogaert et al. 2009a; Estabrooks, Tourangeau, Humphrey, Hesketh, Giovannetti, Thomson, et al., 2002; Lake, 2002; Li, et al. 2007; McCusker, et al., 2004; Slater, O'Halloran, Conolly and McCormack, 2010).

Then NWI-R was modified by Lake in 2002 to be the Practice Environment Scale of Nursing Work Index (PES-NWI). The PES-NWI consists of 31 items and five subscales: nurse participation in hospital affairs; nursing foundations for quality of care; nurse manager ability, leadership, and support of nurses; staffing and resource adequacy; collegial nurse-physician relations. Each item is measured on a 4-point Likert scale ranging as: 1- Strongly Disagree; 2- Disagree, 3-Agree; and 4- Strongly Agree.

The PES-NWI was used to: describe and compare work environments; classify hospitals' environments according to their organizational traits; assess the effect of organizational traits on nurses' and patients' outcomes; and to predicted nurses' outcomes or quality of care levels from the organizational traits. Through using PES-NWI the construct "nursing practice environment" could be measured as a continuous variable; the overall PES-NWI composite could be calculated as the mean of the five subscales. Values above 2.5 reflect general agreement on positive characteristics, whereas values of 2.5 or less reflect negative characteristics. Also, hospitals could be classified in to favorable, mixed and unfavorable work environment. Hospitals scored positively on one or less subscale are classified as unfavorable work environment for nurses, positive scores on two to three subscales reflect mixed, and on four to five subscales are considered favorable (Lake and Fariese, 2006).

The instrument was found to be highly reliable and valid in most studies when it was used to measure work environment characteristics; Cronbach Alpha ranged from 0.71 to 0.84 (Aiken et al., 2008; Friese, 2005; Lake, 2002; McCusker et al. 2004). Lake (2002) conducted a psychometric study, through which she established evidences for validity and reliability. Construct validity was established through known group method, exploratory and confirmatory factor analysis. Also, the five extracted subscales reflected high reliability; Cronbach's Alpha ranged from 0.71-0.84. High consistency was reflected; the intraclass correlation (1, k) ranged from 0.86-0.97.

Another study by McCusker, et al. (2004) confirmed the five-factor subscales identified by Lake (2002) using a sample of 243 nurses in a university affiliated hospital in Canada. Standardized Cronbach alpha for subscales ranged from 0.71-0.84. Also, Cronbach alpha ranged from 0.79-0.84 for the five subscales in a study conducted to investigate nursing work environment and nursing outcomes in both oncology units and

magnet hospitals (Friese, 2005). In another study aimed to examine the influence of nursing work environment on patients' and nurses' outcomes with controlling for nursing staffing and education, the researchers used three of five subscales: nursing foundations for the quality of care; nurse manager ability, leadership, and support; and collegial nurse –physician relations, all three subscales reflected high reliability, Cronbach alpha scores were 0.74, 0.82 and 0.80 respectively (Aiken, et al., 2008).

For this study, the overall Cronbach alpha for total items of the PES-NWI was: 0.931 and the Cronbach alpha for the five subscales ranged from 0.639-0.842. Two subscales had lower alpha reliabilities than 0.70 (the minimum desirable value) (Waltz, Strickland and Lenz, 2005).

In short, the instrument was found simple, easy to understand, using appropriate language, and could be used for different inferential statistics; which allow researcher to describe, compare, and predict. Also, it is cost effective as it is available in the public domain (Appendix III).

Mueller/ McCloskey Satisfaction Scale (MMSS).

It is a self reported scale developed by McCloskey (1974) to measure hospital nurses' job satisfaction. This scale was grounded in both Maslow's theory of hierarchy of needs and Burn's theory of motivation (Mueller & McCloskey, 1990; Tourangeau, McGillis- Hall, Doran & Petch, 2006). This scale was revised later by Mueller and McCloskey (1990), to include 31- five points of likert scale items, ranging from 1 (very dissatisfied) to 5 (very satisfied). The scale can be used to measure the global job satisfaction by summing all 31 items, or to measure job satisfaction dimensions: extrinsic rewards, scheduling, balance of family and work, co-workers, interaction opportunities, professional opportunities, praise and recognition, and work control and responsibility. Mueller and McCloskey (1990) reported that these dimensions could be

classified according to Maslow's theory to three categories; first: safety rewards include nurses' satisfaction with extrinsic rewards, scheduling, and balance between family and work. Second: social rewards include satisfaction with co-workers and interaction opportunities. Third: psychological rewards that include professional opportunities, praise and recognition, and control over the work conditions and responsibility.

When measuring global job satisfaction, the scores ranged from 31-155 or the mean ranged from 1-5; scores from 31-76 or from 1-2.49 reflected job dissatisfaction. Scores between 77 and 108 or 2.5-3.5 indicated that the nurses neither satisfied nor dissatisfied or moderately satisfied, scores above 108 or above 3.5 reflected nurses job satisfaction (Appendix IV) (Mueller & McCloskey, 1990).

This scale has wide application in nursing research and administration; also, it has been used with international nursing populations, and it reflected acceptable validity and reliability levels. Mueller and McCloskey (1990) studied the effectiveness of MMSS in measuring nurses' job satisfaction. Criterion-related, construct validity and reliability were established for the instrument. Exploratory factor analysis exhibit nine factors, eight of them were meaningful and accepted. The Cronbaach's alpha for the total MMSS was 0.89, and ranged between 0.52- 0.84 for the subscales. Similarly, Misener, Haddock, Gleaton and AbuAjamih (1996) assess the validity of MMSS in West Bank in Palestine. Four factors were extracted from the 31 items. Cronbaach's alpha for the total instrument was 0.90.

In addition, the psychometric properties of the MMSS were studied. Exploratory factor analysis extracted seven factors model. The validity of the instrument was supported. Cronbaach's alpha for the extracted subscales ranged from 0.29-0.89, reliability was found to be weak for three factors (Tourangeau, et al. 2006).

Mrayyan (2007) used the MMSS to identify variables of nurses' job satisfaction in Jordan. Cronbaach's alpha for all items of MMSS was 0.84, and ranged from 0.55-0.91 for the eight subscales.

The MMSS reliability was tested for this study, Cronbach's alpha for the total instrument was 0.946, and ranged between 0.617-0.854 for the eight subscales. Only one subscale had reliability alpha below 0.70.

The SERVQUAL.

This instrument was originally developed in 1985 by Zeithaml, Parasuraman & Berry to measure service quality. It is reliable and valid scale that managers, researchers and professionals can use to measure service quality and improve it (Clark & Clark, 2007; Parasuraman, Zeithaml & Berry, 1988; Scardina, 1994). *SERVQUAL* was revised by the developers in 1991, and then in 1992 it was modified by Babakus and Mangold to be used in health services and health care settings (Babakus & Mangold, 1992).

The service quality according to this instrument is the difference between service specifications (what nurse expects the level of service) and service delivery (what he or she perceives the service in an experienced situation). Operationally, service quality according to this instrument has five dimensions: tangibles (the general appearance of the hospital physical facilities, nurses and communication methods), reliability (the nurses' ability and accurately performing the promised services), responsiveness (the nurses' real willingness to help patients and providing accurate nursing care), assurance (the nurses competency and their ability to convey trust and confidence) and empathy (the individualized and holistic care provided to patient) (Babakus & Mangold, 1992; Parasuraman, Zeithaml & Berry, 1988; Scardina, 1994). Nurses' expectations about nursing care (the service) are objective and consistent because it built on their accumulated information about their profession. SERVIQUAL was designed to

measure seven gaps; in this study the researcher used SERVQUAL to measure gap three, through which the service quality is measured by the service providers by comparing service specifications to delivered services.

The SERVQUAL consists of 22-Likert scale items with five points (1 = very much below standards, 2= below standards, 3 = match standards at minimum level, 4= above standards, 5 = very much above standards) (Appendix IV). In this study, nurses expectations or service specifications for any item is 3, the range of total scores is between "22-110". Total quality can be calculated through total, mean or percentage scores, and according to this we can calculate the weight of each category in the whole quality. The closer the score to 66 or mean 3 or 50% the quality is within satisfactory level or minimum accepted level compared to standards of care. Scores higher than 77 or 3.5 in mean or 62.5% reflected high quality levels. Scores below 55 or 2.5 in mean or 37.5% reflected poor level of quality nursing care.

This instrument has wide application in hospital settings with high reliability; Cronbach alpha > 0.90 for the total instrument (Chou, Chen, Woodard & Yen, 2005; Clark & Clark, 2007; Headly & Miller, 1993; Lee, 2005; Scardina, 1994). Babakus and Mangold (1992) studied the effectiveness of SERVQUAL in assessing clients' perception of quality of care. The reliability of the five subscales was measured; Cronbach alpha for expectations subscales were ranged from 0.495-0.801 and ranged from 0.874-0.901 for perception subscales. The overall Cronbach alpha for expectation part was 0.897 and it was 0.964 for the perception part of the tool.

Arikan (1999) used SERVQUAL to evaluate the level of nursing services. Cronbach alpha for the total instrument was 0.94. In this study, the researcher conducted reliability test for the total SERVQUAL and for each subscales. The results

revealed high reliability; Cronbach alpha for the total SERVQUAL was 0.956 and ranged between 0.842-0.932 for the five subscales.

Open- ended questions.

The researcher adds two questions by the end of SERVQUAL questionnaire: first a semantic differential scale from (0-10) to assess the nurses' perception toward the level of quality of nursing care in their hospitals and free answer question for factors that have great influences on quality of nursing care according to nurses opinions (Appendix V). Also, one item of semantic deferential scale (from 0-10) was added by the end of MMSS to assess the level of nurses' job satisfaction (Appendix IV).

The demographic data.

The demographic data of this study included: gender, marital status, shift work, time commitment, level of education, age, years of experience as a nurse), selected department characteristics such as: type of the department the nurse work in, daily census of the department, the model of nursing care provision, and the leadership style of the immediate supervisor (Appendix VI). These characteristics of the participants and their department were chosen by the researcher based on the literature review results, because they were found to have significant effect on study variables (nurses' job satisfaction and quality nursing care) and are not part of the work environment tool (Aiken, et al. 2008; Herzberg, 1959; Mrayyan, 2005).

Pilot Study

A pilot study was conducted on a convenient sample of 20 registered nurses who were working in different hospitals in Jordan and who were not included in the study. The pilot aimed to validate the contents of the tools; estimate the participation rate and

the time needed by the nurses to complete the questionnaires; and to assess the feasibility of the study procedures (data collection, entry, and analysis).

The response rate for the pilot was 18 of 20 or 90% which may predict the response rate for the actual study. The nurses in the pilot study found the English language of the instrument easy to understand by nurses and more familiar to them, because English language is the main language in nursing education in Jordan. So, they recommended using the instrument in English. In addition, the contents of each tool were found to reflect most of its domain according to Jordanian nurses. Nurses in the pilot study completed the questionnaire within 20-25 minutes.

Cronpach Alpha was calculated for the three tools it was 0.79 for the Practice Environment Scale of the Nursing Work Index (PES NWI), 0.78 for McCloskey/Mueller Satisfaction Scale (MMSS) and 0.94 for SERVQUAL.

Data Collection

The data in this study were collected by the researcher herself during the first three months of 2011. The researcher was available in the hospital setting to answer any question, explain any point or solve any problem of misunderstanding. This procedure was expected to decrease the bias that is usually resulted from using more than one researcher for data collection (Polit & Beck, 2008).

The data for this study was collected from 12 hospitals in three health sectors (private, public (MOH) and educational). Ethical approvals to conduct the study were obtained from all hospitals; one hospital apologized for denying participation. Before the data collection, the researcher contacted the nurse manager of each hospital or education in-service to decide on the most appropriate time for data collection and to facilitate the process of access to the hospital departments. In the day of data collection the researcher directly contacted the department head-nurses; the researcher explained

briefly the purpose of the study, the data collection procedure and the inclusion and exclusion criteria for head nurses and then took their permission to start data collection.

Nurses were approached mostly on A and B shifts, some nurses were approached on C-shift through other nurses who express their willingness to help. Nurses who were fulfilling the inclusion criteria and expressed their interest to participate in the study were provided by brief verbal explanation about the study and the participant package; which included: the cover letter (Appendix II) and the three instruments. In addition, the researcher assured the participants' privacy and anonymity, also, she was available in the hospital for any question. The completed questionnaires were coded for analysis, and then they were kept in closed envelope. Some nurses asked for extended time to fill the questionnaire because of work overload; the researcher returned back to the hospital according to nurses' request, also, nurses were encouraged to contact the researcher for any question during this period.

The process of data collection, coding and entering data to the computer software program "Statistical Package for Social Sciences (SPSS)" files were run concurrently with data collection by the researcher.

Data Analysis

The data was analyzed by the researcher using computer package SPSS 17. After entering the data, the researcher made preliminary data analysis through which missing data and outliers were treated appropriately. Then both descriptive and inferential statistics were used.

Preliminary data analysis.

Missing data.

The researcher assessed the amount and pattern of missing. By screening the data, there were no systematic missing but few random missing were detected and treated by

imputation (Warner, 2008). In case of multivariate missing, when a subject had ≥ 30% of its data was missing, subject was omitted from the analysis. Also, when univariate missing was identified, the researcher used the mean substitution strategy (substituting the mean of the variable for all subjects for that the missing values), hot deck imputation and regression. Specifically, for a continuous variable, the mean substitution method was used where the mean of the sample was used to substitute the missing, and then the substituted values do not affect the distribution of the variable. Also, when the missing values were found in a dichotomized covariate, hot deck imputation was used, this procedure had the advantage over other procedures because it is more reliable to use values of matched respondent rather than calculating the missing values that might be inaccurate and not reliable (Warner, 2008). In addition, when missing data were found in more than two subscales of the same instrument the subject was omitted.

Outliers and extreme values.

The researcher used scatter plots, box- wehskers plot and histograms to assess the presence of outliers and extreme values. Residuals also, were used to diagnose outliers. Few outliers were detected; the researcher first checked the accuracy of data entry. In the variables were data entered correctly the researcher assessed the amount of outliers and the data distribution. Data transformation was used for skewd data (Warner, 2008).

In addition, the variables were checked for multicollinearity, singularity, and construct validity. Therefore, the researcher didn't use subscale to prevent singularity, and too highly correlated ($r \geq .80$) variables to prevent multicollinearity (Warner, 2008).

Descriptive statistics.

The researcher used the univariate descriptive statistics to assess the central tendency measures (means (M) and medians) and the variability (standards deviation (SD) and range) for the collected data. These statistics helped in assessing the nurses'

perception of work environment, job satisfaction and quality of nursing care, and to describe the demographic characteristics of the sample. Histograms and scatter plots were used to perform descriptive analysis of the variables by looking at the frequency distribution. The descriptive statistics helped in answering the first research question of this study.

Inferential statistics.

The researcher used different statistical procedures according to the research questions:

- ANOVA and Post hoc test (Bonferroni): to differentiate between the three types of hospitals (teaching, public (MOH) and private), in relation to work environment characteristics, job satisfaction and quality of nursing care. Also, to compare the means of studied variables in relation to demographics and department characteristics. This helped the researcher to get a holistic view for the third and fourth research questions.
- Pearson Correlation Coefficient (Pearson r) was used to assess the relationship between nursing work environment and nurses' job satisfaction; and quality of nursing care among Jordanian nurses'. This test was used to answer the second research question.
- Stepwise regression analysis was used to reveal a prediction power of a series of ordinal and interval variables (Demographics, work environment and nurses' job satisfaction) of quality of nursing care (interval variable). All the procedure assumptions were taken inconsideration when the test was applied by the researcher such as normality of the outcome variable, linearity of all predictors, homogeneity of variance and independency of variables.

Content analysis.

The researcher used Content Analysis procedure to answer the sixth research question in this study. This part consisted of one open ended question in which the participants have the freedom to fill out their response in the given spaces. The question asked the nurses to determine their perception of factors that may influence the quality of nursing care. The process of content analysis was started by accumulating the similar pieces of text or idea units together and then it counted to the same category. Then texts shared in the same idea were put in the same category (Speziale & Carpenter, 2007).

CHAPTER 4

Research Results

The purpose of this study was to investigate the influence of nurses' perception of work environment and nurses' job satisfaction on quality of nursing care. Descriptive-correlational survey design was used to collect data from registered nurses who worked in different health sectors in Jordan. The data of this study was analyzed using descriptive and inferential statistics. Also, content analysis was used for the open-ended question.

In this chapter the researcher presents the results of this study. The chapter includes a presentation of the demographic characteristics, followed by the results of the data collected to answer the six research questions.

Demographic Characteristics

A total of 440 nurses were approached and 408 registered nurses completed the questionnaires, 136 participants from each sector (public, private and educational). Of the participants, 163 (40%) were males, and 245 (60%) were females. The mean age of the participants was 28 (SD= 5.20) years, ranging from 22 to 49 years. The mean years of experience was 5.82 (SD= 5.10) years. The analysis showed that 25% (n=102) of the nurses were below the age of 24 years, with experience less than 2 years. In addition, the age of 50% (n= 204) of the participants ranged from 24 to 30 and their experience ranged from 2 to 8 years. Around half of the participants were single 208 (51%), 196 (48%) nurses were married and very limited numbers were divorced or widowed 4(1%). Most of the participants 398 (97.50%) had baccalaureate degree, and only ten participants (2.50%) had master degree. The sample included 388 (95.10%) nurses who worked full-time and 20 (4.90%) worked part time. The nurses in the sample worked on

different shifts; some of them were fixed on specific shift, but most of them 308 (97.50%) were rotating on different shifts either (A, B, C) or (Day, Night) (Table 2 a & b).

In relation to the area of work; most nurses (305, 74.80%) worked in general medical and surgical departments. Nurses in most departments (228, 55.90%) were assigned to work as a team. Besides, according to the participants, most managers 180 (44.10%) adopted the democratic leadership style, (94, 23%) adopted the situational style, followed by (71, 17.40%) managers adopted the autocratic leadership style (Table 2 a & b).

The average daily census was 25.14 (SD= 12.60) patients in different departments. However, around 25% of hospitals' departments had a census of 16 patients, and around 50% of the departments, patient census ranged between 16-32 patients.

The variations among Jordanian hospitals in relation to demographic characteristics

Using Chi-square test for non parametric values (Table 2a) and compare mean (ANOVA) test (Table 2b), the three health sectors in Jordan (public, private and educational) were found to be different in relation to some demographics and department characteristics. Post hoc test helped to determine significant areas of differences.

In relation to demographics, single nurses were found to be more in private hospitals (84, 61.80%) than those in public (57, 41.90%) and educational hospitals (67, 49.30%). Most nurses in the sample who were fixed on A-shift worked in public hospitals (51, 37.50%), whereas most of the rotating nurses worked in private hospitals (118, 86.80%), however this difference were not statistically significant. In addition,

private hospitals had younger nurses (M=26.62, SD= 4.60) and less experienced nurses than other two sectors (M=4.46, SD= 4.5) (Table 2 a & b).

Nurses in the three sectors were also had some differences in relation to their perception of some departments' characteristics. Educational hospitals had the higher daily census average (M=30.29, SD=14.10) than the other two sectors. Health sectors were also differing in nursing care model; most managers in educational hospitals (70, 51.50%) used the total patient care; whereas team method was adopted by managers in both public (96, 70.60%) and private (95, 69.90%) hospitals (Table 2 a & b).

Table 2a

Demographic characteristics of participants in regards to their working settings (N= 408)

Variables	Total Sample		Public		Private		Educational		Chi-square	df
	N	%	n	%	n	%	n	%		
Gender									3.45	1
Male	163	40.00	56	41.20	61	44.90	46	33.80		
Female	245	60.00	80	58.80	75	55.10	90	66.20		
Marital Status									4.65*	1
Single	208	51.00	57	41.90	84	61.80	67	49.30		
Married	196	48.00	77	56.60	52	38.20	67	49.30		
Divorced/ Separated	3	0.80	1	0.70			2	1.50		
Widowed	1	0.20	1	0.70						
Shift Worked									3.31	1
Day (12 hours)	5	1.20			4	2.90	1	0.70		
Night (12 hours)										
A (8 hours)	90	22.10	51	37.50	12	8.80	27	19.90		
B (8 hours)	4	1.00	1	0.70	1	0.70	2	1.50		
C (8 hours)	1	0.20			1	0.70				
Rotating	308	75.50	84	61.80	118	86.80	106	77.90		
Time Commitment									1.06	1
Full-time	388	95.10	132	97.10	130	95.60	126	92.60		
Part-time	20	4.90	4	2.90	6	4.40	10	7.40		
Level of Education									0.51	1
Baccalaureate	398	97.50	134	98.50	133	97.80	131	96.30		
Master	10	2.50	2	1.50	3	2.20	5	3.70		
PhD									0.25	1
Department										
Medical & Surgical	305	74.80	108	79.40	96	70.60	101	74.20		
Obstetric/ Maternity	33	8.10	11	8.10	14	10.30	8	5.90		
Pediatric	70	17.10	17	12.50	26	19.10	27	19.90		
Nursing Care Model									18.82**	1
Total patient care	89	21.80	2	1.50	17	12.50	70	51.50		
Team	228	55.90	96	70.60	95	69.90	37	27.20		
Functional	72	17.90	32	23.60	21	15.40	19	14.00		
Unclear	19	4.70	6	4.40	3	2.20	10	7.40		
Leadership Style									3.74	1
Autocratic	71	17.40	26	19.10	14	10.30	31	22.80		
Democratic	180	44.10	59	43.40	69	50.70	52	38.20		
Delegative	63	15.40	25	18.40	10	7.40	28	20.60		
Situational	94	23.00	26	19.10	43	31.60	25	18.40		

*The result is significant at the 0.05 level (2-tailed) **The result is significant at the 0.01 level (2-tailed)

Shadowed area reflected the results of post-hoc test.

Table 2b

Demographic characteristics of participants in regards to their working settings (N= 408).

Variables	Total Sample		Public		Private		Educational		ANOVA	
	M	SD	M	SD	M	SD	M	SD	F	sig.
Age	28.00	5.20	29.80	5.80	26.62	4.60	27.65	4.80	14.20	.000
Nursing Experience	5.82	5.10	7.48	5.60	4.46	4.50	5.50	4.70	12.83	.000
Daily Census Rate	25.10	12.60	27.60	11.30	17.54	6.80	30.29	14.70	47.41	.000

Shadowed area reflected the results of post-hoc test.

Nurses' Perception of Work Environment, Job Satisfaction and Quality of Nursing Care

The first research question was: What are the Jordanian nurses' perceptions of their work environment, job satisfaction and quality of nursing care provided at public, private and educational hospitals?

Descriptive statistics was used to understand nurses' perception of work environment, job satisfaction and quality of nursing care. Also, Pearson moment product correlation coefficient (r) was used to reveal the most important factors that have association with overall job satisfaction and overall quality nursing care.

Nursing work environment.

The Practice Environment Scale of the Nursing Work Index (PES-NWI) was used to assess the nursing work environment and its characteristics among Jordanian hospitals. Scores above 2.5 reflect general agreement on positive characteristics, whereas scores less than 2.5 reflect negative characteristics. Also, positive scores in four to five subscales were considered favorable work environment for nurses, positive scores in two to three subscales reflected mixed, and in one or less subscales were classified as unfavorable (Lake and Friese, 2006).

Descriptive statistics (mean, standards deviations and frequencies) were calculated for composite work environment characteristics and for each item and subscale in the tool. Based on items means, Jordanians' hospitals were the highest in items such: "physicians and nurses have good working relationships" (M= 2.93, SD= 0.59), "an active quality-assurance program" (M= 2.88, SD= 0.72), "high standards of nursing care are expected by the administration" (M= 2.88, SD= 0.66), "written, up-to-date nursing care plans for all patients" (M= 2.87, SD= 0.70) and "A nurse manager who is a

good manager and leader" (M= 2.80, SD= 0.77). Three of these items belong to the subscale of "nursing foundations for quality of care" which reflected positive characteristics in this domain.

On the other hand, nurses reported that Jordanian hospitals had some negative characteristics such as: "enough registered nurses to provide quality patient care" (M= 1.99, SD= 0.69), "enough staff to get the work done" (M= 2.01, SD= 0.64), "enough time and opportunity to discuss patient care problems with other nurses" (M= 2.11, SD= 0.64), "adequate support services allow me to spend time with my patients" (M= 2.18, SD= 0.69), and "staff nurses are involved in the internal governance of the hospital" (M=2.36, SD=0.68). Four of the five items belong to the subscale "staffing and resource adequacy" which means that nursing work environment in Jordan have negative characteristics regarding this dimension (Table 3).

For the 408 nurses the composite nursing work environment traits was 2.55 (SD= 0.39) which indicates that nurses had general agreement on nursing work environment neither positive nor negative (neutral). The means of the subscales revealed that, nurses agreed on the presence of three characteristics: collegial nurse/ physician relations (M= 2.78; SD= 0.47), nursing foundation for quality of care (M= 2.76; SD= 0.46) and nurse manager abilities, leadership, and support of nurses (M= 2.64; SD= 0.50). On the other hand, nurses agreed generally on negative characteristics for "staffing and resources adequacy" (M= 2.07, SD= 0.52). The dimension of "nurse participation in hospital affairs" was considered neutral in Jordanians' hospitals (Table 3).

In relation to the hospitals classification to favorable, mixed and unfavorable work environment; the nurses' generally, agreed on positive characteristics for three subscales out of five, this indicated that hospitals in Jordan generally have mixed level of work environment characteristics; they have some positive characteristics beside some

negative characteristics. The study sample included 12 hospitals from three health sectors in Jordan (public, private and educational), five of these hospitals (41.6%) had favorable environment (four private and one educational hospitals), three hospitals (25%) had mixed characteristics (two public and one educational), and 33% of hospitals were classified as unfavorable nursing work environment.

Table 3

Nurses' Perception of Characteristics of Work Environment in Jordanian Hospitals (N=408).

Work environment characteristics	Mean	SD
Nurse participation in hospital affairs	2.50	0.45
Career development/clinical ladder opportunity.	2.44	0.68
Opportunity for staff nurses to participate in policy decisions.	2.38	0.72
A chief nursing officer who is highly visible and accessible to staff	2.69	0.67
A chief nursing officer equal in power and authority to other top-level hospital executives	2.45	0.75
Opportunities for advancement.	2.42	0.63
Administration that listens and responds to employee concerns.	2.52	0.68
Staff nurses are involved in the internal governance of the hospital (e.g., practice and policy committees).	2.36	0.68
Staff nurses have the opportunity to serve on hospital and nursing committees.	2.68	0.65
Nursing administrators consult with staff on daily problems and procedures	2.60	0.70
Nursing foundation for quality of care	2.76	0.46
Active staff development or continuing education programs for nurses.	2.63	0.82
High standards of nursing care are expected by the administration	2.88	0.66
A clear philosophy of nursing that pervades the patient care environment.	2.76	0.73
Working with nurses who are clinically competent.	2.69	0.63
An active quality assurance program.	2.88	0.72
A preceptor program for newly hired RNs	2.59	0.86
Nursing care is based on a nursing, rather than a medical, model.	2.77	0.72
Written, up-to-date nursing care plans for all patients.	2.87	0.70
Patient care assignments that foster continuity of care, i.e., the same nurse cares for the patient from one day to the next.	2.80	0.67
Use of nursing diagnoses.	2.73	0.69
Nurse manager ability, leadership, and support of nurses	2.64	0.50
A supervisory staff that is supportive of the nurses.	2.73	0.73
Supervisors use mistakes as learning opportunities, not criticism.	2.53	0.75
A nurse manager who is a good manager and leader.	2.80	0.77
Praise and recognition for a job well done.	2.56	0.69
A nurse manager who backs up the nursing staff in decision making, even if the conflict is with a physician.	2.56	0.77
Staffing and resources adequacy	2.07	0.52
Adequate support services allow me to spend time with my patients.	2.18	0.69
Enough time and opportunity to discuss patient care problems with other nurses	2.11	0.64
Enough registered nurses to provide quality patient care.	1.99	0.69
Enough staff to get the work done	2.01	0.64
Collegial nurse/ physician relations	2.78	0.47
Physicians and nurses have good working relationships	2.93	0.59
A lot of team work between nurses and physicians.	2.68	0.62
Collaboration (joint practice) between nurses and physicians.	2.74	0.63
Composite	2.55	0.39

Nurses' job satisfaction.

The Jordanian nurses' job satisfaction was measured using the MMSS. The scores of the total job satisfaction ranged from 31-155 with mean item of ranging from 1-5. A score range of 31-76 or means below 2.5 indicate job dissatisfaction, scores between 77 - 108 or 2.5-3.5 the nurses are neither satisfied nor dissatisfied or moderately satisfied, scores above 108 or above 3.5 reflected nurses job satisfaction

The total score of job satisfaction in this study was 86.27. Around 50% (n=204) of the nurses had scores ranged from 73-103; indicated that, most nurses were moderately satisfied. Around 25% (n=102) of nurses were dissatisfied and had scores between 36 and 72. As well, 25% (n=102) of nurses were satisfied and had scores of 104 or above.

Means and standard deviations were calculated for each item and subscales. The mean of total job satisfaction items was 2.78 (SD= 0.65). Thus, nurses in Jordan were moderately satisfied with their work. Nurses reported that they were mostly satisfied with co-workers and interaction opportunities as follows (Table 4): their nursing peers (M= 3.28, SD= 1.01), the physicians they work with (M= 3.15,SD= 1.01), the delivery of care method used in their units (M= 3.08, SD= 1.03) opportunity for social contact with their colleagues after work (M= 3.04, SD= 1.07) and opportunity for social contact at work(M= 3.02, SD= 1.07).

On the other hand, nurses were mostly dissatisfied with extrinsic rewards and the balance of family and work (Table 4). These include: vacations (M=2.27, SD= 1.11), salary (M= 2.36, SD= 1.09), opportunity for part-time work (M= 2.47, SD= 1.13), child care facilities (M= 2.48, SD= 1.01) and benefits package (insurance, retirement) (M= 2.56, SD= 1.06).

In general, the nurses' responses to the MMSS indicate that they were moderately satisfied ($2.50 < M < 3.50$) with: co-workers (health team members), interaction

opportunities (social contacts with health team members), scheduling (such as: working hours, weekends, flexibility in scheduling and compensations for working weekends and holidays), balance of family and work (opportunity to work straight days, maternity leave and child care), professional opportunities (to work with faculty members and nurses committees, work on research and publish), praise and recognition (recognition, encouragement and positive feedback) and control and responsibility (amount of responsibility and control over work conditions). Nurses were dissatisfied with extrinsic rewards ($M < 2.50$) such as: salary, vacations and benefits package (Table 4).

In addition to the MMSS with its eight dimensions the overall job satisfaction was assessed through one semantic deferential scale ranging from 0 -10, the mean score of this item was 5.29, which reflected also moderate satisfaction. Standardized Pearson correlation (r) was used to expose the most important dimensions of Jordanian nurses' job satisfaction.

A significant positive correlation was detected between the overall job satisfaction (semantic deferential scale) and all dimensions of the MMSS. The most important dimensions of job satisfaction were: satisfaction with control and responsibility ($r = 0.62$), satisfaction with professional opportunities ($r = 0.60$), satisfaction with interaction opportunities ($r = 0.56$), satisfaction with scheduling ($r = 0.55$) and satisfaction with praise and recognition ($r =0.51$). However, the correlation magnitude for the remaining three dimensions was moderate which means that these dimensions may have less influence on Jordanian nurses job satisfaction than the others (Table 5).

Table 4

Nurses' Perception of Dimensions of Jordanian Nurses' Job Satisfaction (N=408).

Job Satisfaction Items	Mean	SD
Total Job Satisfaction	2.78	0.65
Satisfaction with extrinsic rewards	2.40	0.93
Salary	2.36	1.09
Vacation	2.27	1.11
Benefits package (insurance, retirement)	2.56	1.07
Satisfaction with scheduling	2.72	0.82
Hours that you work	2.70	1.10
Flexibility in scheduling your hours	2.79	1.02
Opportunity to work straight days	2.63	1.00
Weekends off per month	2.78	1.16
Flexibility in scheduling your weekends off	2.86	1.11
Compensation for working weekends	2.57	1.05
Satisfaction with the balance of family and work	2.54	0.81
Opportunity for part-time work	2.47	1.13
Maternity leave time	2.68	1.08
Child care facilities	2.48	1.01
Satisfaction with co-workers	3.22	0.91
Your nursing peers	3.28	1.01
The physicians you work with	3.15	1.01
Satisfaction with interaction opportunities	3.01	0.86
The delivery of care method used on your unit (e.g. functional, team, primary)	3.08	1.03
Opportunities for social contact at work	3.02	1.07
Opportunities for social contact with your colleagues after work	3.04	1.08
Opportunities to interact professionally with other disciplines	2.90	1.01
Satisfaction with professional opportunities	2.74	0.88
Opportunities to interact with faculty of the College of Nursing	2.83	1.11
Opportunities to belong to department and institutional committees	2.83	1.07
Opportunities to participate in nursing research	2.69	1.07
Opportunities to write and publish	2.62	1.06
Satisfaction with praise and recognition	2.93	0.77
Your immediate supervisor	2.99	1.05
Recognition for your work from superiors	2.91	0.94
Recognition of your work from peers	3.01	0.97
Amount of encouragement and positive feedback	2.82	1.00
Satisfaction with control and responsibility	2.79	0.80
Control over what goes on in your work setting	2.81	0.98
Opportunities for career advancement	2.70	1.02
Your amount of responsibility	2.89	1.08
Your control over work conditions	2.89	1.02
Your participation in organizational decision making	2.67	1.06

Table 5

The Relationship between Overall Jordanian Nurses' Job Satisfaction as Measured by Semantic Deferential Scale and Nurses' Job Satisfaction Dimensions as Measured by MMSS (N=408).

Job Satisfaction Dimensions	r	P -Value
Satisfaction with extrinsic rewards	0.46	≤ 0.01
Satisfaction with scheduling	0.55	≤ 0.01
Satisfaction with the balance of family and work	0.46	≤ 0.01
Satisfaction with co-workers	0.38	≤ 0.01
Satisfaction with interaction opportunities	0.56	≤ 0.01
Satisfaction with professional opportunities	0.60	≤0.01
Satisfaction with praise and recognition	0.51	≤ 0.01
Satisfaction with control and responsibility	0.62	≤ 0.01

Quality nursing care.

The **SERVQUAL** instrument was used to measure Gap 3 (care specification versus care delivery). Quality total scores around 66 or mean scores around 3 reflect satisfaction with the level of quality of nursing care or minimum accepted level compared to standards of care. Scores higher than 77 or a mean of 3.5 reflect high quality levels. Scores below 55 or a mean of 2.5 reflect poor level of quality of nursing care.

Table (6) shows that the quality of nursing care generally was scored 63.24 (SD= 15.40). The quality of nursing care according to 50% of nurses in the sample ranged from 53-74. Around 25% of nurses reflected a perception of high quality of nursing care; their scores of quality were higher than 74, where as 25% of nurses reflected a perception of poor the quality of nursing care; their evaluation was below 53.

Moreover, the means and standard deviations were calculated for each item and quality subscales. All quality items and subscales scored between 2.50 and 3.50 which indicate a satisfactory level of the quality of nursing care in all quality aspects. Quality of nursing care was scored the highest the assurance aspect (M= 3.07, SD= 0.89); which

means that the hospitals selected have competent nurses with good knowledge, courtesy and the aptitude to inspire hope and confidence. The second aspect was the responsiveness (M= 2.95, SD= 0.77), which reflects the nurses willingness to help patients and provide prompt care. However, tangible aspect – that relates to physical facilities, equipment and nurses' appearance – scored the lowest aspect of the quality of nursing care (M= 2.56, SD= 0.93) (Table 6).

The overall nurses' perception of the quality of nursing care was assessed through eliciting nurses' responses to a semantic deferential scale that ranges from 0-10, the average quality level according to this item was 5.68 which reflected moderate level for quality nursing care. The Responses to each of the five quality factors of the SERVQUAL were correlated to the overall perception of quality using Standardized Pearson Correlation (r) in order to identify the most important factors that are perceived as influential of the quality of nursing care. All quality factors were correlated positively with the overall the quality of nursing care ($r > 0.50$). This means that all quality factors are important to achieve high quality nursing care. The most important factors were assurance ($r = 0.71$) and empathy ($r = 0.71$). The tangible factor of care was the least important in providing the quality of nursing care ($r = 0.68$) (Table 7).

Table 6

Nurses' Perception of Quality Nursing Care in Jordan (N=408).

Quality Nursing Care Aspects	Mean	SD
Total Quality	2.87	0.70
Tangible	2.56	0.93
The nursing staff of this hospital use modern looking equipment.	2.52	1.01
The physical facilities at this hospital are visually appealing.	2.50	1.02
Nurses at this hospital are neat in appearance.	2.64	1.00
Materials associated with the care (such as pamphlets) are visually appealing in this hospital.	2.59	1.03
Reliability	2.90	0.74
When a member of nursing staff promises to do something by a certain time, he or she will do so.	2.78	0.92
When a patient has a problem, the nursing staff show a sincere interest in solving it.	2.86	0.98
The nursing staff perform treatment and care correctly the first time.	2.88	0.88
The nursing staff provide care at the time they promise to do so.	2.87	0.89
The nursing staff are competent in providing accurate care.	2.98	0.90
Responsiveness	2.95	0.77
The nursing staff tell patients exactly when treatments will be performed.	2.99	0.90
The nursing staff give prompt care to patients.	2.97	0.87
The nursing staff are always willing to help patients.	3.07	0.96
Te nursing staff are never too busy to respond to patients' requests.	2.76	1.01
Assurance	3.07	0.89
The behavior of nurses in this hospital instills confidence in patients.	3.04	1.03
Patients of this hospital feel safe while receiving nursing care.	3.07	1.02
The nursing staff in this hospital are consistently courteous with patients.	3.11	1.01
The nursing staff in this hospital have the knowledge and skill to respond to patients' questions.	3.06	1.01
Empathy	2.91	0.79
The nursing staff in this hospital give patients individual attention.	2.95	0.99
This hospital's visitation hours are convenient to all patients and their families.	2.87	1.00
Nurses at this hospital are expected to give patients personal attention.	2.88	0.93
The nurses have the patients' best interests at heart.	2.87	0.96
The nursing staff understand the specific needs of their patients.	2.97	0.95

Table 7

The Relationship between Overall Quality Nursing Care as Measured by Semantic Deferential Scale and Quality Nursing Care Aspects as Measured by SERVQUAL (N=408).

Quality factors	r	*P*
Tangible	0.68	≤ 0.01
Reliability	0.68	≤0.01
Responsiveness	0.70	≤ 0.01
Assurance	0.71	≤ 0.01
Empathy	0.71	≤ 0.01

The Relationships between Nursing Work Environment, Nurses ' Job Satisfaction and Quality Nursing Care

The second research question was: What are the relationships between nursing work environment and nurses' job satisfaction; and quality of nursing care among Jordanian nurses'?

The standardized Pearson correlation (r) was used to measure the strength of the linear relationship between nursing work environment, nurses' job satisfaction and the quality of nursing care. The results revealed statistical significant positive correlations (at 0.01 alpha levels) between the total score of the quality of nursing care and both the total scores of nursing work environment and nurses' job satisfaction (Table 8). The correlation was higher between the total score of the quality of nursing care and total job satisfaction scores ($r = 0.72$) than between the total score of the quality of nursing care and total score of the nursing work environment ($r = 0.66$). This result indicates that both nursing work environment and nurses' job satisfaction have positive influence on the quality of nursing care.

The relationships between the quality of nursing care and nursing work environment subscales were also studied; all nursing work environment traits were

correlated significantly with the quality of nursing care. Nursing foundation for quality of nursing care had the highest correlation with the quality of nursing care (r = 0.61), followed by the managers' ability and leadership and support for nurses (r = 0.56). This means that these two traits of nursing work environment had the strongest influence on the quality of nursing care. On the other hand, the results revealed that collegial nurse/physician relations (r = 0.45) had the lowest influence among the five work environment traits (Table 8)

Moreover, the eight dimensions of nurses' job satisfaction were correlated significantly with the quality of nursing care; their single effect on quality was determined. Nurses' satisfaction with control and responsibility (r = 0.69) had the strongest effect on the quality of nursing care, followed by nurses' satisfaction with praise and recognition (r =0.65) then nurses' satisfaction with professional opportunities (r = 0.62). On the other hand, nurses' satisfaction with extrinsic rewards (r = 0.41) was the dimension that had the lowest effect or influence on the quality of nursing care (Table 8).

Table 8

Relationship between Quality Nursing Care, Perceived Nursing Work Environment and Nurses' Job Satisfaction among Registered Nurses in Jordanian Hospitals (N=408).

The Study Variables	Quality Nursing Care
Nursing Work Environment	0.66**
Nurse participation in hospital affairs	0.56**
Nursing foundation for quality of care	0.61**
Nurse manager ability, leadership, and support of nurses	0.56**
Staffing and resources adequacy	0.46**
Collegial nurse/ physician relations	0.45**
Nurses' Job Satisfaction	0.72**
Extrinsic rewards	0.41**
Scheduling	0.49**
The balance of family and work	0.44**
Co-workers	0.50**
Interaction opportunities	0.59**
Professional opportunities	0.62**
Praise and recognition	0.65**
Control and responsibility	0.69**

**Correlation is significant at the 0.01 level (2-tailed)

The Differences in Nurses' Demographics and Department Characteristics in relation to the Study Variables

The third research question was: What are the differences in nurses' demographics, the department average daily census, model of nursing care provision, and leadership style in relation to nursing work environment, nurses' job satisfaction and level of quality of care?

The relationship between continuous variables (age, experience and daily census) and nursing work environment, nurses' job satisfaction and the quality of nursing care were assessed using Pearson Correlation (r). For categorical variables in demographics and selected department characteristics ANOVA test was used to assess the differences in mean scores of: nursing work environment, nurses' job satisfaction and quality of

nursing care. Furthermore, post hoc test (Bonferroni correction) was used to explore which means were significantly different from each other. Although, correlational tests are robust in assessing the relationship in categorical variables; but they don't give enough information about the direction of relationship, hence it is more appropriate to use compare means tests (Warner, 2008).

The differences in nurses' demographics and department characteristics in relation to the nursing work environment.

The perception of nursing work environment was found to be statistically different in relation to some nurses' demographics. Nurses' age and experience had negative correlation with the perception of nursing work environment ($r = -0.16$, $p \leq 0.01$) and ($r = -0.15$, $p \leq 0.01$) respectively, indicating that; older nurses and more experienced nurses reflected more negative perception of work environment. In addition, the differences of the mean scores of the perception of nursing work environment in relation to different nursing characteristics were measured in categorical variables using ANOVA test. The perception of work environment was found to be different between nurses who were working on different shifts ($F_{4,403}= 3.89$, $p \leq 0.01$); nurses who were rotating on different shifts reflected better traits for the nursing work environment than did nurses on fixed shifts A or B. However, only one nurse in the sample was fixed on C shift, hence the result for this shift was neglected (Table 9).

In regarding to the department characteristics, the nursing work environment had significantly negative relationship to daily census ($r = - 0.20$, $p \leq 0.01$); that is, the departments with high census reflected lower scores in the nursing work environment characteristics. Moreover, significant differences were noted in the perception of the nursing work environment in relation to department type ($F_{2,405}= 5.02$, $p \leq 0.01$), nursing care model ($F_{3,404}= 13.56$, $p \leq 0.01$) and leadership style ($F_{3,404}= 12.12$, $p \leq$

0.01). The results revealed that the best work environment was presented in pediatrics wards, followed by maternity and Obstetric department, while the medical and/or surgical departments had the lowest scores. Also, the departments that used the total patient care as a care delivery model reflected higher scores of nursing work environment, followed by team model and finally the functional model of care. The nursing work environment was positively perceived in areas where the immediate supervisors used situational and democratic leadership style, while using autocratic style was associated with poor nursing work environment (Table 9).

Table 9

Differences in Work Environment Traits in Relation to Nurses' Demographics and Department Characteristics (N=408).

Demographics	Nursing Work Environment				
	N	%	Mean	F	P- Value
Gender				1.72	0.19
Male	163	40.00	2.50		
Female	245	60.00	2.60		
Marital Status				2.02	0.11
Single	208	51.00	2.60		
Married	196	48.00	2.50		
Divorced/ Separated	3	0.70	2.30		
Widowed	1	0.20	2.30		
Shift Worked				3.89	≤ 0.01
Day (12 hours)	5	1.20	2.70		
Night (12 hours)					
A (8 hours)	90	22.10	2.50		
B (8 hours)	4	1.00	2.50		
C (8 hours)	1	0.20	3.80		
Rotating	308	75.50	2.60		
Time Commitment				0.10	0.75
Full-time	388	95.10	2.60		
Part-time	20	4.90	2.60		
Level of Education				0. 47	0.49
Baccalaureate	398	97.50	2.60		
Master	10	2.50	2.50		
Department				5.02	≤ 0.01
Medical & Surgical	305	74.80	2.50		
Obstetric/ Maternity	33	8.10	2.60		
Pediatric	70	17.10	2.70		
Nursing Care Model				13.56	≤ 0.01
Total patient care	89	21.80	2.70		
Team	228	55.90	2.60		
Functional	72	17.90	2.50		
Unclear	19	4.70	2.20		
Leadership Style				12.12	≤ 0.01
Autocratic	71	17.40	2.40		
Democratic	180	44.10	2.60		
Delegative	63	15.40	2.50		
Situational	94	23.00	2.70		

Shadowed area reflected the results of post-hoc test.

The differences in nurses' demographics and department characteristics in relation to nurses' job satisfaction.

Among all demographics, nurses' age and experience had significantly negative correlation with nurses' job satisfaction ($r = -0.12$, $p = 0.02$ and $r = -0.10$, $p = 0.04$) respectively. That is; nurses' job satisfaction decreases significantly with increase in age and experience. Young nurses with little experience had higher job satisfaction than did older, more experienced nurses.

In relation to department characteristics, there were significantly negative correlation between nurses' job satisfaction and daily census rate ($r = -0.262$, $p \leq 0.01$), which means that nurses' job satisfaction decreased significantly with increased daily census rate. In addition, there were significant differences among the four studied "nursing care delivery models" ($F_{3,404} = 5.20$, $p \leq 0.01$); nurses were more satisfied in departments adopting "total patient care" and "team" models than those adopting "functional" or unclear model (Table 9). As well, nurses' job satisfaction was found to be different according to the leadership style used by the first line manger (immediate supervisor) in the department ($F_{3,404} = 12.65$, $p \leq 0.01$); nurses' satisfaction was higher in departments where situational or democratic leadership style were used than departments where autocratic leadership style was used (Table 10). Moreover, nurses' job satisfaction was significantly different among the studied departments ($F_{2,405} = 4.88$, $p \leq 0.01$); nurses' job satisfaction was the best in pediatrics departments, followed by obstetric/ maternity departments, and finally, the medical and/ or surgical departments (Table 10).

Wrapping up, nurses' job satisfaction was differ according to nurses' age and experience, department daily census rate, department type, nursing care model and leadership style adopted in the department.

Table 10

Differences in Nurses' Job Satisfaction in Relation to Nurses' Demographics and Department Characteristics (N=408).

Demographics	Nurses' Job Satisfaction				
	N	%	Mean	F	P- Value
Gender				1.35	0.25
Male	163	40.00	84.80		
Female	245	60.00	87.20		
Marital Status				1.20	0.31
Single	208	51.00	88.10		
Married	196	48.00	84.40		
Divorced/ Separated	3	0.70	83.30		
Widowed	1	0.20	79.00		
Shift Worked				0.65	0.63
Day (12 hours)	5	1.20	89.50		
Night (12 hours)					
A (8 hours)	90	22.10	83.40		
B (8 hours)	4	1.00	85.50		
C (8 hours)	1	0.20	96.00		
Rotating	308	75.50	87.00		
Time Commitment				0.57	0.45
Full-time	388	95.10	86.40		
Part-time	20	4.90	83.00		
Level of Education				0.01	0.95
Baccalaureate	398	97.50	86.30		
Master	10	2.50	86.70		
Department				4.88	≤ 0.01
Medical & Surgical	305	74.80	84.60		
Obstetric/ Maternity	33	8.10	87.30		
Pediatric	70	17.10	92.90		
Nursing Care Model				5.20	≤ 0.01
Total patient care	89	21.80	89.50		
Team	228	55.90	87.60		
Functional	72	17.90	81.50		
Unclear	19	4.70	73.40		
Leadership Style				12.65	≤ 0.01
Autocratic	71	17.40	74.60		
Democratic	180	44.10	89.60		
Delegative	63	15.40	83.00		
Situational	94	23.00	90.90		

Shadowed area reflected the results of post-hoc test.

The differences in nurses' demographics and department characteristics in relation to quality nursing care.

Correlation results revealed significant relationship between some demographics and the quality of nursing care. Nurses' age and experience had significant negative relationship with the quality of nursing care ($r = -0.16$, $p \leq 0.01$ and $r = -0.15$, $p \leq 0.01$) respectively. That is, the evaluation of the quality of nursing care as poor quality was associated with older and experienced nurses.

Furthermore, the quality of nursing care had significant correlations with different department characteristics: daily census, department type, nursing care model and leadership style. Department daily census had significantly negative correlation with the quality of nursing care ($r = -0.25$, $p \leq 0.01$); the increase daily census was associated with a decrease in quality level. Nursing care model and leadership style were found to be significant factors of the quality of nursing care. There were significant differences among the studied models ($F_{3,404} = 7.55$, $p \leq 0.01$); high level of the quality of nursing care was associated with total patient care and team models. Also, the quality of nursing care was found to be different among different leadership styles ($F_{3,404} = 8.15$, $p \leq 0.01$); high scores of the quality of nursing care were associated with situational and democratic leadership styles (Table 11). Moreover, the quality of nursing care was significantly different according to department type ($F_{2,405} = 5.23$, $p \leq 0.01$); high scores of quality were associated with pediatrics departments (Table 11).

Table 11

Differences in Quality Nursing Care in Relation to Nurses' Demographics and Department Characteristics (N=408).

Demographics	Quality Nursing Care				
	n	%	Mean	F	P- Value
Gender				0.20	0.65
Male	163	40.00	62.80		
Female	245	60.00	63.50		
Marital Status				1.91	0.15
Single	208	51.00	64.70		
Married	196	48.00	61.80		
Divorced/ Separated	3	0.70	64.30		
Widowed	1	0.20	50.00		
Shift Worked				1.79	0.13
Day (12 hours)	5	1.20	63.60		
Night (12 hours)					
A (8 hours)	90	22.10	59.40		
B (8 hours)	4	1.00	64.80		
C (8 hours)	1	0.20	67.00		
Rotating	308	75.50	64.30		
Time Commitment				1.12	0.29
Full-time	388	95.10	63.40		
Part-time	20	4.90	59.70		
Level of Education				0.24	0.62
Baccalaureate	398	97.50	63.20		
Master	10	2.50	65.60		
Department				5.23	≤ 0.01
Medical & Surgical	305	74.80	62.00		
Obstetric/ Maternity	33	8.10	63.00		
Pediatric	70	17.10	68.60		
Nursing Care Model				7.55	≤ 0.01
Total patient care	89	21.80	67.10		
Team	228	55.90	64.10		
Functional	72	17.90	58.40		
Unclear	19	4.70	53.10		
Leadership Style				8.15	≤ 0.01
Autocratic	71	17.40	56.10		
Democratic	180	44.10	65.10		
Delegative	63	15.40	61.20		
Situational	94	23.00	66.40		

Shadowed area reflected the results of post-hoc test.

The Variations among Jordanian Hospitals in Relation to: Nursing Work Environment, Nurses' Job Satisfaction and Quality Nursing Care

The fourth research question was: Are there variations across Jordanian hospitals in relation to the nursing work environment characteristics, nurses' job satisfaction and quality nursing care?

Public, private and educational sectors were compared according to their means for different work environment characteristic, nurses' job satisfaction dimensions and quality nursing care aspects (Table 12). The statistical test ANOVA was used to compare means among the three health sector with alpha level of 0.05. Post hoc test (Bonferroni correction) was employed to reveal means that were significantly different from each others. Bonferroni correction has the advantage of decreasing the probability of type I error; so it is conservative test (Warner, 2008).

Nursing work environment.

Results of total scores of nursing work environment revealed that nurses reflected positive work environment characteristics in privet sector (M=2.83, SD= 0.35) and educational sector (M= 2.52, SD= 0.32), and negative characteristics in public sector (M= 2.30, SD= 0.30). However there are significant differences among the three sectors of health care ($F_{2,405}$= 90.04, $p \leq 0.01$). Nurses in private hospitals agreed on positive characteristics of work environment in four out of five characteristics, which indicate favorable and professional work environment for nurses (Table 12).

The private hospitals were the best in areas such as: Nursing foundation for quality of care (M= 3.07, SD= 0.43) and Collegial nurse/ physician relations (M= 3.00, SD= 0.49). Whereas, Staffing and resources adequacy (M=2.44, SD= 0.50) get the lowest score among work environment characteristics in private hospitals (Table 12).

In relation to the public sector, nurses agreed on positive characteristics for one aspect of work environment: Collegial nurse/ physician relations (M= 2.65, SD=0.43), other aspects were scored as negative characteristics which make it generally unfavorable work environment. Also, Staffing and resources adequacy were found to be scored as the lowest aspect among work environment characteristics in the three health care sectors (Table 12).

Nurses' job satisfaction.

Nurses' job satisfaction and its eight dimensions were compared according to their means in public, private and educational health sectors. Scores revealed significant differences among the three health sectors in nurses' job satisfaction ($F_{2,405}$= 69.06, $p \leq 0.01$). The nurses in both private and educational sectors were moderately satisfied (M= 3.22, SD= 0.54) and (M= 2.70, SD= 0.66) respectively. Whereas, nurses were dissatisfied in public hospitals (M= 2.43, SD= 0.47).

Nurses in private hospitals were satisfied with co-workers (M= 3.60, SD= 0.79) and interaction opportunity (M= 3.52, SD= 0.70), and they were moderately satisfied with other dimensions. In educational sector the nurses were moderately satisfied with all job satisfaction dimensions. Nurses in public sector were moderately satisfied with three dimensions of nurses' job satisfaction: co-workers (M= 2.93, SD= 0.86), interaction opportunity (M= 2.69, SD= 0.72) and praise and recognition (M=2.61, SD=0.70). Nurses in public hospitals were dissatisfied with: Extrinsic rewards (M=1.97, SD= 0.86), the balance of family and work (M= 2.20, SD= 0.75), professional opportunities (M= 2.28, SD= 0.68), control and responsibility (M= 2.39, SD= 0.63) and scheduling (M= 2.43, SD= 0.71) (Table 12).

Quality nursing care.

The hospitals levels of quality nursing care were also different significantly among the three health sectors ($F_{2,405}$= 111.80, $p \leq 0.01$). The quality of nursing care was within satisfactory level and met the minimum level of standards of care in both private (M= 3.42, SD= 0.58) and educational (M= 2.78, SD= 0.61) sectors. On the other hand, the quality of nursing care was scored below standards in public hospitals (M= 2.42, SD= 0.50) (Table 12).

The quality nursing care was high in assurance aspect (the nurses' competency and their ability to convey trust and confidence) (M= 3.64, SD= 0.82) in private hospitals, other aspects were within satisfactory level. The nurses in educational hospitals evaluated four aspects of quality nursing care within satisfactory level: assurance (M= 2.94, SD= 0.76), responsiveness (M= 2.88, SD= 0.71), reliability (M= 2.83, SD= 0.70) and empathy (M= 2.78, SD= 0.74). Tangible aspect was slightly below standards in educational hospitals (M= 2.48, SD= 0.68).

Three aspects of quality nursing care were found to be within satisfactory level in public hospitals: assurance (M= 2.63, SD= 0.74), responsiveness (M= 2.55, SD= 0.66) and reliability (M= 2.53, SD= 0.64). Two aspects were evaluated below standards: empathy (M= 2.48, SD= 0.60) and tangible (M= 1.85, SD= 0.64).

Table 12

Comparisons of Nursing Work environment, Nurses' Job Satisfaction and Quality Nursing Care among Public, Private and Educational Health Sectors in Jordan.

The Variables	Total Sample N=408		Public n=136		Private n=136		Educational n=136		
	M	SD	M	SD	M	SD	M	SD	F
Work environment characteristics	2.58	0.40	2.31	0.31	2.86	0.35	2.57	0.33	94.32**
Composite Nursing Work Environment	2.55	0.39	2.30	0.30	2.83	0.35	2.52	0.32	90.04**
Nurse participation in hospital affairs	2.50	0.35	2.23	0.38	2.74	0.41	2.50	0.42	55.17**
Nursing foundation for quality of care	2.76	0.46	2.44	0.35	3.07	0.43	2.77	0.37	92.86**
Nurse manager ability, leadership, and support of nurses	2.64	0.50	2.38	0.46	2.89	0.44	2.64	0.47	42.17**
Staffing and resources adequacy	2.07	0.52	1.81	0.36	2.44	0.51	1.99	0.47	70.53**
Collegial nurse/ physician relations	2.78	0.47	2.65	0.43	3.00	0.49	2.70	0.45	24.91**
Job Satisfaction	2.78	0.65	2.43	0.47	3.22	0.54	2.70	0.66	69.06**
Extrinsic rewards	2.40	0.93	1.97	0.86	2.66	0.92	2.55	0.86	23.91**
Scheduling	2.72	0.82	2.43	0.71	3.14	0.74	2.60	0.83	33.22**
The balance of family and work	2.54	0.81	2.20	0.65	2.99	0.77	2.43	0.79	40.93**
Co-workers	3.22	0.91	2.93	0.86	3.60	0.79	3.13	0.94	21.34**
Interaction opportunities	3.01	0.86	2.69	0.72	3.52	0.70	2.83	0.90	44.36**
Professional opportunities	2.74	0.88	2.28	0.68	3.25	0.76	2.70	0.90	52.97**
Praise and recognition	2.93	0.77	2.61	0.70	3.32	0.63	2.87	0.81	33.96**
Control and responsibility	2.79	0.80	2.39	0.63	3.27	0.67	2.70	0.82	53.24**
Quality Nursing Care	2.87	0.70	2.42	0.50	3.42	0.58	2.78	0.61	111.80**
Tangible	2.56	0.93	1.85	0.64	3.37	0.74	2.48	0.68	167.03**
Reliability	2.88	0.74	2.53	0.64	3.27	0.69	2.83	0.70	40.72**
Responsiveness	2.95	0.77	2.55	0.66	3.41	0.68	2.88	0.71	53.90**
Assurance	3.07	0.88	2.63	0.74	3.64	0.82	2.94	0.76	60.88**
Empathy	2.91	0.79	2.48	0.60	3.47	0.68	2.78	0.74	76.15**

**The result is significant at the 0.01 level (2-tailed)
Shadowed area reflected the results of post-hoc test for the main variables only. It was significant for the subscales at most levels.

Quality Nursing Care Predictors

The fifth research question was: What is the prediction power of work environment and job satisfaction in relation to quality of nursing care?

Stepwise regression analysis was used to identify the most important factors related to quality nursing care. Stepwise regression is a systematic procedure through which variables are added or removed from a multi linear model based on their significant contribution in predicting the outcome variable (statistical regression) (Warner, 2008). In this method, because there were no previous studies to predict quality nursing care from these variables, the studied variables were entered in one step, there were 24 predictors; the sub scales of the two main independent variables (nursing work environment and nurses' job satisfaction), and all demographics and department characteristics variables. Stepwise regression was used, and the order of data entry was one at a time.

The data was screened for violation of multiple regression assumptions or presence of multicollinearity; which means increase in the correlation between predictors which will inflate the standard error of the regression coefficients. To measure the collinearity the researcher asked for tolerance (1-R^2) and VIF (variance inflated factors) , the values were around 1; there were no extremely high multicollinearity.

The researcher checked both the predictors and the outcome variable for: the level of the variable, presence of missing and outliers. Also, the researcher assessed the distribution for all variables. Statistics and histogram showed skewness in some continuous variables in this study (nurses' age and experience). Data transformation was run for both variables (New X= Log10 (X)) because of sever positive skewness. In relation to categorical variables such as department type, nursing care model and

leadership style, dummy variables were created using dummy coding method; to fit the regression analysis model.

Scatter plot and bivariate correlation were obtained for every pair of quantitative variables; results revealed linear relationships for all variables. The homogeneity of the variance was assessed for all pairs using scatter plot, Levene's and Welch's tests, the variance was homogenous at different score values.

The overall regression, included the 24 predictors was significant for six predictors (satisfaction with control and responsibility, nursing foundation for quality of care, , satisfaction with praise and recognition, Satisfaction with professional opportunity, rotating shift work and daily census). The regression model reflected that these predictors were accounted for around 59% of the variance of quality nursing care.

The contribution of each significant predictor was assessed. Nurses' satisfaction with control and responsibility (nurses' job satisfaction dimension) was statistically significant $F_{1,406} = 371.097$, $p \leq 0.01$; $R^2 = 0.476$ when it was the first variable in the model, it continued to be highly significant all over the model steps. Nursing foundation for quality of care (nursing work environment subscale) increased the R^2 significantly when it was entered in step 2, $F_{1,405} = 70.871$, $p \leq 0.01$, R^2 was 0.553, hence the change in R^2 was 0.078. That is, nursing foundation for quality of care predicted 7.8% of quality nursing care scores under controlling the effect of nurses' satisfaction with control and responsibility. However, the dramatic decrease in F-ratio was related to small increase in R^2 compared to the loss of degrees of freedom for the residual (Warner, 2008).

In addition, another two dimensions of nurses' job satisfaction were also significant predictors to quality nursing care in Jordan; satisfaction with praise and recognition and satisfaction with professional opportunity which reflected the great influence of nurses'

job satisfaction on quality nursing care. Furthermore, working on rotating shifts (A, B&C) or (Day, Night) was the only significant demographic predictor. Whereas, daily census average was the only predictor among the selected department characteristics; however, increase daily census influence the quality negatively (Table 13).

The other 18 predictors were not significantly related to the quality nursing care when other predictors were statistically controlled. Generally, quality nursing care could be predicted from satisfaction with control and responsibility, nursing foundation for quality of care, satisfaction with praise and recognition, Satisfaction with professional opportunity, rotating shift work and daily census. Although, nursing work environment, department type, nursing care model, leadership style, nurses' age and experience had significant zero-ordered correlations with quality nursing care; their contribution was redundant when controlling other variables (Table 14). This means that these factors still related to quality nursing care but the relationship is weaker and not significant when controlling for other variables, that is, there are probably mediator factors.

This result was supported by Durbin- Watson test (1.668), a value near 2 which indicate a non- autocorrelation; that means, the effect of residual values on regression if presented is very limited; as the effect of the residuals is very limited; it is expected to find approximately typical values of quality nursing care scores and predicted scores of quality nursing care, scatter plot for this relation (Appendix VII).

Table 13

Predictors of Quality Nursing Care as Perceived by Jordanian Nurses (N=408)

Variables	B	Adjusted R^2	R^2-Change	F-Change	df	p
Satisfaction with control and responsibility	5.382	.476	.478	371.097	1/406	≤ 0.01
Nursing foundation for quality of care	9.236	.553	.078	70.871	1/405	≤ 0.01
Satisfaction with praise and recognition	4.295	.577	.025	23.917	1/404	≤ 0.01
Satisfaction with professional opportunity	1.981	.585	.009	8.943	1/403	.003
Nursing shift work (Rotating)	0.753	.589	.005	5.001	1/402	.026
Daily census	-0.080	.592	.004	3.888	1l401	.049

Table 14

Correlation Matrix of the Prediction Model Variables (N=408).

	hos. affairs	Quality Of Care	Manag. Ability	Staffing Resource.	N/Ph. Relat.	Extrin. Rewards	Scheduling	Family	Coworkers	Interaction	Professional	Recognition	Control	Age	Experience	Rotating	Daily census	Care Model	Leadership
hos. Affairs	1.00																		
Quality Of Care	0.73**	1.00																	
Manager. Ability	0.70**	0.69**	1.00																
Staffing Resources	0.60**	0.51**	0.51**	1.00															
N/Ph. Relation	0.49**	0.56**	0.52**	0.38**	1.00														
Extrinsic Rewards	0.38**	0.35**	0.31**	0.31**	0.21**	1.00													
Scheduling	0.39**	0.40**	0.42**	0.39**	0.30**	0.56**	1.00												
Family	0.42**	0.36**	0.38**	0.41**	0.30**	0.49**	0.60**	1.00											
Coworkers	0.31**	0.40**	0.38**	0.27**	0.40**	0.22**	0.42**	0.38**	1.00										
Interaction	0.48**	0.51**	0.50**	0.39**	0.43**	0.36**	0.46**	0.44**	0.60**	1.00									
Professional	0.53**	0.52**	0.54**	0.39**	0.38**	0.50**	0.50**	0.49**	0.47**	0.69**	1.00								
Recognition	0.48**	0.49**	0.53**	0.40**	0.36**	0.40**	0.53**	0.47**	0.65**	0.64**	0.64**	1.00							
Control	0.56**	0.55**	0.54**	0.48**	0.41**	0.47**	0.56**	0.50**	0.55**	0.66**	0.73**	0.75**	1.00						
Age	-0.17**	-0.15**	-0.18**	-0.09	-0.11*	-0.10	-0.01	-0.11*	-0.07	-0.13**	-0.23**	-0.09	-0.06	1.00					
Exp.	0.18**	0.11*	0.18**	0.16**	0.07	0.05	0.04	0.12*	0.06	0.12*	0.18**	0.13**	0.12*	-0.74**	1.00				
Rotating shift	0.09	0.07	0.05	0.07	0.04	0.09	0.06	0.10	0.07	0.11*	0.13**	0.05	0.01	-0.68**	0.39**	1.00			
Daily census rate	0.13**	-0.19**	0.12*	-0.26**	-0.12*	-0.16**	-0.21**	-0.15	-.16**	-0.25**	-0.27**	-0.16**	-0.21**	0.07	-0.06	-0.15**	1.00		
Care Model	0.26**	-0.36**	0.18**	-0.10*	-0.19*	-0.20**	-0.08	-0.06	-0.10*	-0.18**	-0.25**	- 0.09	-0.15**	0.08	-0.03	-0.05	0.21**	1.00	
Leadership	0.05	0.19**	0.09	0.09	0.20**	0.05	0.16	0.04	0.21**	0.13*	0.12*	0.18**	0.18**	0.01	0.05	0.05	-0.12*	-0.09	1.00

*Correlation is significant at the 0.01 level (2-tailed) **Correlation is significant at the 0.05 level (2-tailed)

Factors that Affect Quality Nursing Care

The sixth research question was: What are the factors that affect quality nursing care as perceived by Jordanian nurses' at different health care settings?

The SERVQUAL questionnaire was ended with one open ended question about the factors that enable or help in providing quality nursing care. Of the 408 nurses, 183 (44.85%) nurses responded to the open ended question; 75 (40.98%) were from public hospitals, 40 (21.86%) were from private hospitals and 68 (37.16%) were from educational hospitals.

The researcher analyzed the transcripts line by line, nurses agreed on 26 sub themes for the first coding, and then it was deduced according to their meanings to four categories. The items of the factor "adequate and competent nurses" get the highest frequencies, followed by "nursing work environment" factor, then the factor of "competent and supportive management", and finally "professionalism" factor (Table 15).

According to nurses' opinion, the most important factors that have great effect on quality nursing care are: "nurse: patient ratio" 92 (55.27%), "continuous education for nurses" 59 (32.24%), "extrinsic rewards for nurses such as: salary" 55 (30.05%), "adequate and advanced recourses and equipment" 38 (20.77%) and "qualified manager" 30 (16.39%) (Table 15).

Table 15:

Nurses' Perceptions of Factors that have Influence on Quality Nursing Care (N=183)

Quality Nursing Care Factors	Sub-Categories	n	%
Adequate and Competent Nurses	Nurse: Patient ratio.	92	50.27
	Continuous education for nurses.	59	32.24
	Qualified nurses	24	13.11
	Communication skills for nurses	18	9.84
	Specialization in nursing	6	3.28
	Nurses conscience	5	2.73
Nursing Work Environment	Extrinsic rewards	55	30.05
	Adequate and advanced resources and equipment	38	20.77
	Intrinsic rewards	15	8.20
	Time working hours and weekends	13	7.10
	Comfortable and safe environment.	10	5.46
	Hospitals' policies and standards	8	4.37
	Nurses job satisfaction	7	3.83
Competent and Supportive Management.	Qualified manager	30	16.39
	Team work	11	6.01
	Strong and independent nursing department	10	5.46
	Continuous evaluation for quality of care	10	5.46
	Stress management	8	4.37
	Strict rules and regulations	3	1.64
	Justice	3	1.64
Professionalism	Accurate documentation	15	8.20
	Nurses do nursing job only	10	5.46
	Professional relationship with health team members	7	3.83
	Participate with decision making	7	3.83
	Evidence- based Practice	5	2.73
	Nurses' autonomy and authority	5	2.73

Summary of Results

The descriptive statistics of nursing work environment, nurses' job satisfaction and the quality of nursing care revealed that these phenomena were in moderate levels. The nursing work environment in the studied hospitals was at mixed level in general (M=2.55); it had some positive characteristics and some negative characteristics. Similarly, the nurses in the current study reported moderate level of job satisfaction (M= 2.78). When comparing provided care to standards of care, nurses evaluated the quality of nursing care in the minimum level of standards (M=2.87).

Significant statistical relationships were found between the quality of nursing care and both: nurses job satisfaction (r =0.72) and nursing work environment (r =0.66). The job satisfaction dimensions were correlated positively with the quality of nursing care; the highest correlation was scored for "nurses' satisfaction with control and responsibility". Also, all nursing work environment traits were correlated significantly with the quality of nursing care; the highest correlations were for "Nursing foundation for quality of nursing care" and the "manager ability, leadership and support for nurses".

Six predictors for the quality of nursing care were reflected through using stepwise regression model: satisfaction with control and responsibility, nursing foundation for quality of care, satisfaction with praise and recognition, satisfaction with professional opportunity, rotating shift work and daily census.

Finally, through an open-ended question, the participants reported that the most important factors to enhance the quality of nursing care were: adequate and competent nurses, nursing work environment, competent and supportive management and finally, professionalism.

CHAPTER 5

Discussion

The quality of nursing care has become priority for health care organizations, researchers, and professionals worldwide. This study extends the literature base related to factors that may have influence on the quality of nursing care, in an attempt to outline recommendations that might help nurse managers and policy makers in improving the quality of nursing care in Jordan. This chapter discusses the results of this study, it includes: interpretation of findings in relation to the literature, conclusions obtained from the findings, limitations of this study, and finally, implications of the findings in nursing practice, education, administration and research recommendations.

Demographics and Department characteristics

Demographically, most nurses in Jordan are from generation X (born between 1965 and 1981) and generation Y (born in or after 1982) (Mason, et al. 2002). This indicated that most nurses in the field are young with short experience; Jordan rarely had nurses from mature generation or baby boomers. This could be related to high turnover rate among Jordanian nurses 36.6% (Hayajneh, AbuAl Rub, Athamneh & Almakhzoomy, 2009); either they leave the profession or migrate for better job opportunities (Al Maaitah & Shokeh, 2009). Nurses in private sector were younger with less experience than nurses in other sectors, whereas, older nurses with long experience were presented more in public sector. This may be related to high turnover rate in private sector as compared to public sector that that reflected more job stability (Hayajneh, et al. 2009).

Regarding the department characteristics; the educational hospitals were found to have the highest daily census among the three sectors; this is may be related to the large capacity of different departments in these hospitals. Also, educational hospitals are referral hospitals and cover wide range of health insurance categories including governmental organizations, universities and some private companies.

Most nursing managers in educational hospitals and one private hospital adopted the total patient care method of assignment in their wards as a model for providing nursing care. This could be attributed to high standards of care that are set by these hospitals, nature of cases that require comprehensive care and the presence of adequate number of registered nurses and support services. Professionally, total patient care model ensures the provision of holistic care (Marquis & Huston, 2000), and is positively associated with the quality of nursing care and low level of job pressure (McGillis Hall & Doran, 2007).

Nursing Work Environment in Jordan

Description of nursing work environment in Jordan.

In general, the nursing work environments of the hospitals studied could be described as mixed environments that possess both positive and negative traits. Studies conducted in the USA and Europe found that mixed environment were found in hospitals that were working to reach magnetism while favorable environments are parallel to magnet status, and unfavorable work environments are associated with non-magnet hospitals (Flynn and McCarthy, 2008; Gerhardt & Vankuiken, 2008; Hinno et al. 2009; Lake & Friese, 2006).

In this study, 12 hospitals were selected according to their capacity; hospitals with large capacity (more than 150 beds) were used. Six hospitals were public and distributed in different cities in Jordan (Amman, Zarqa, Irbid and Al-Salt). In addition, two educational

hospitals were in Amman and Irbid, and four private hospitals occurred in the capital Amman. The results of this study revealed that five of these hospitals were having favorable work environment (four private and one educational); thus these hospitals could be considered magnet. Three hospitals were having mixed characteristics (two public and one educational), and four public hospitals were classified as unfavorable nursing work environment. Although, staffing and resources adequacy is a very important part of nursing work environment; favorable hospitals as well as other hospitals in Jordan were suffering from low staffing levels. This result support Lake and Friese (2006) results where some hospitals were found to be favorable, but with low staffing levels.

Surprisingly, the hospitals that were classified as favorable in Jordan were reported to have the highest turnover rates among Jordanian hospitals (Hayajneh, et al. 2009), which is contrary to the idea of magnetism or favorable work environment. This means that there are important factors in Jordanian nursing work environment that are required for nurses' satisfaction and retention that were not measured by PES-NWI. These factors may include: the distance the nurse travels to the hospital, fairness in rewards, justice between employees, respect and leadership style and nursing care model adopted in hospitals. Thus, further investigations, especially qualitative studies are required to explore factors of nursing work environment important to Jordanian nurses.

Most nurses in magnet hospitals in the USA were found to have low experience (less than five years) (Lake & Friese, 2006; Upenieks, 2003). In contrast, the findings of the European studies suggested positive correlation between age and the PES-NWI scores (Flynn & McCarthy, 2008; Hinno et al. 2009). The results of this study support those of the USA studies.

In relation to department characteristics, favorable work environment in this study was associated with high nurse to patient ratio and with low daily census; this result was consistent with the findings of Lake and Friese (2006). Also, the highest scores of PES-NEW were found in pediatrics wards followed by maternity and obstetrics and then the medical or / and surgical wards, this result was congruent with the findings of Boyle and Colleges (2006) where pediatrics ward reflected highest scores among different work environment traits. This finding could be explained by the workload in the different types of units. The policy in most hospitals indicates that children are accompanied with a parent or a relative which makes it easier for the nurses to let the accompanying person assist in the care of the child. In the maternity departments, women are either antenatal or post natal, which means they are not really sick, on the contrary, they are living a natural happy event and require minimal care in which they can have a major part. On the other hand, patients in the medical and surgical wards are more demanding and need more assistance and care.

McGillis Hall and Doran (2007) found that total patient care as a care model was associated with magnet status that provides a favorable environment for nurses. In this study, total patient care was correlated with favorable work environment. This result asserts that the environment in the studied hospitals was a mixed environment in general and the fact that most Jordanian hospitals are seeking accreditation which demands providing a favorable environment for nurses. However, because of low levels of staffing in Jordanian hospitals; other nursing care models are used such as the team model, which is also associated positively with both favorable and mixed work environment.

In addition, in this study high PES-NWI scores were presented in areas where situational and democratic leadership styles were used, according to Marquis and Huston

(2000) these models enhance satisfaction and creativity among nurses. However, creating positive work environment to ensure high quality nursing care, patient satisfaction and nurses' satisfaction is requiring strong and authentic leadership style (Laschinger, 2007; Laschinger & Leiter, 2003; Sherman & Pross, 2010).

Variations in Jordanian nursing work environments.

The nursing work environment in the studied hospitals was generally neutral (traits were neither positive nor negative). Nurses reflected positive characteristics for three dimensions of work environment: collegial nurse/ physician relations, nursing foundation for quality of care and nurse manager abilities, leadership, and support of nurses. The dimension of "nurse participation in hospital affaires" was in the mid score; this indicates a need for farther investigation for this area to enhance improvement. On the other hand, the studied hospitals have negative characteristics in regard to "staffing and resources adequacy" dimension.

Collegial nurse/ physician relations had the highest scored mean by nurses, which reflected mutual respect and acknowledgment for each other's competences and roles. Actually, nurse/physician relations had witnessed a remarkable improvement in Jordan recently, because of self confidence the nurses have as a result of her Royal Highness Princess Muna Al-Hussein support to the profession, strong education, the presence of supportive professional bodies such as the Jordanian Nursing Council (JNC), increased number of male nurses and female physicians and finally the increased public awareness and appreciation for the nurses' role in disease treatment and health promotion. The mutual

respect and trust of each other's abilities among health care professionals, allow for nurses autonomy and better quality outcomes (Aiken, 2001).

The results of all health sectors reflected presence of collegial nurse/physician relations. Private hospitals scored the highest in this trait; this is because of clear job descriptions for nurses and physician, active continuous education departments and presence of support services that help in patients' care. On the contrary, public hospitals suffer of shortage in nursing and support services, which is reflected negatively on nurses' role. That is, nurses are usually overloaded and do non- nursing jobs; which consequently affect the quality of nursing care and the relationship between nurses and other health team members (Aiken, 2001; Schmalenberg & Kramer, 2009). However, these results are different of what Mrayyan, Mudallal and Hamaideh (2010) found; where public hospitals reflected the best score of nurse/physician relationship among the three sectors. Lake and Friese (2006) reported that PES-NWI was better in detecting variations among hospitals than do R-NWI which was used in Mrayyan, Mudallal and Hamaideh (2010) study.

In addition, hospitals in Jordan are characterized by good *foundation of high standards of the quality of nursing care* through adopting nursing philosophy, suitable nursing non-medical model of care, focus on nurses' competencies and assured quality through different quality assurance programs. Recently, quality assurance has become part of hospitals accreditation in Jordan. Hence, this encourages nurse managers in different hospitals to develop different strategies and programs for continuous evaluation and improvement in the quality of nursing care.

Comparing the three health sectors in Jordan, private hospitals were the first health sector to consider quality assurance and accreditation to achieve excellence and great

reputation for promotion purposes, followed by educational hospitals, thus both sectors reflected positive characteristics in their foundation for quality patient care. In contrast, public hospitals reflected negative characteristics in this trait in as much as these hospitals are still in the process of preparation for accreditation. Indeed, the findings of this dimension supports the findings of Mrayyan, Mudallal and Hamaideh (2010).

The third positive trait of work environment in Jordan was *"nurse manager ability, leadership and support of nurses"*, which describes the nurse managers' role and the degree to which it is supportive to nurses and professional nursing care (Lake, 2002). Actually, leadership abilities and behaviors have a great influence on decisions related to work environment and quality of care (Herzberg, 1959; Laschinger, 2007; Laschinger & Leiter, 2003; Sherman & Pross, 2010). However, nurse managers and policy makers in Jordan recognized the demanding nature of nursing profession, and the fact that the length of duration of experience is not enough to possess leadership positions. Leadership positions need people with critical thinking, problem solving abilities, abilities to inspire others, abilities to work under load effectively and strong leadership personality. Thus, different leadership and management courses were planned for nurses in different leadership positions such as: head nurses, supervisors and nurse directors. These programs were planned and carried out by in-service education departments of different hospitals, the JNC and the Jordanian Nurses and Midwives Council. In addition, the master programs offered by different nursing schools in Jordan, contribute to improve nurses' leadership abilities, and consequently, reflect positively on nurses work environment.

Although, Jordanian nurses reflected generally positive characteristics in relation to mangers' abilities; nurses in public hospitals reflected negative attribute compared to

positive attributes in private and educational hospitals. This could be related to the delay in nurses' participation in different educational programs as a result of poor motivation, dissatisfaction and overload. Added to this, is the fact that most nurses who retire from public and military sectors return back to the work field in different leadership positions at private hospitals. The results of this trait were found to be congruent with the findings of Mrayyan, Mudallal and Hamaideh (2010).

Nurse participation in hospital affairs and decision making at the hospital level is recognized to be an important factor that influences nurses' job satisfaction and the quality of nursing care. It includes factors such as: nurse participation in internal governance, policy development and hospital's committees; opportunity for advancement; open communication at different levels; nurses' autonomy; and nurses' recognition and rewards. Although, no research studies in Jordan were found to examine the influence of nurses' participation in hospital affairs on nurses' and patients' outcomes; magnet hospitals studies and the evaluation programs of hospitals that used shared governance structures found that participation in hospital affairs reflected positive outcomes on nursing profession, nurses' satisfaction and the quality of nursing care (Laschinger and Leiter, 2006; Porter-O'graddy, 2005). Unfortunately, nurses in Jordan still do not recognize the influence of their participation in hospital affairs as an important trait of nursing work environment, on their profession and care outcomes. Nurses reported that this trait is neither negative nor positive, which calls for further investigations to measure the level of nursing participation in internal governance and the nature of this participation.

Comparing the three health sectors; private hospitals were the best in relation to nurse participation in hospital affairs followed by educational hospitals, this is indicative of

autonomy, control over work conditions, opportunity for advancement and participation in policy decisions. These results were contrary to the results of Mrayyan, Mudallal and Hamaideh (2010), where the public hospitals were the best in items related to nurse participation in hospital affairs. This could be related to the fact that private hospitals have the highest turnover rate (Hayajneh, et al. 2009) among the three sectors, hence managers tried to find ways to attract and return nurses to their hospitals in addition to providing good leadership, continuous education programs and improvement of nurses competency. However, more effort should be given from nurses professionals in regard to this dimension of work environment.

Staffing and resources adequacy was the only trait of Jordanian nursing work environment that was perceived negatively by Jordanian nurses in all health care sectors, which means that hospitals in Jordan suffer of shortage in nursing and support services in all health sectors. The findings of this study revealed that private hospitals were better than public and educational hospitals in relation to staffing and resources adequacy. This could be attributed to the recruitment of overseas nurses from India and Philippine and the availability of budget and that the private sector is, logically interested in marketing its services. Aiken (2001) reported that overload, inadequate nurses and support services is considered to be a major source of nurses' job dissatisfaction and poor quality patient care.

Although, the social image of nursing has improved significantly in the last years and the number of nursing graduates has increased; many factors have contributed to nursing shortage in Jordan: high turnover rate, the decrease of female students' pool compared to the needs. In addition, hiring new staff to meet the needs means new expenditures for the health care system in the time of poor financial status. ICN (2006) raised the sounds to

create professional practice environment that supports and improves nurses' retention to improve the quality of health care and ensures patients' safety. Thus, it is a key issue to overcome nursing shortage to improve the quality of care, and to keep the Jordanian health system positive reputation. Evidence from different studies revealed that improving the nursing work environment to achieve favorable environment is a key in nurses' job satisfaction (Chen & Johantgen, 2010; Laschinger et al. (2001)), and improving the quality of nursing care (Laschinger et al. 2001; Friese, 2005; McCusker et al., 2004). Hence, it is important for different health care sectors to improve weak areas of their work environment. Health care managers and policy makers must spend more effort to improve work environment all over Jordan, to achieve equity, justice and access to high quality health care for all Jordanians despite of their place of residence or their standards of living.

In summary, hospitals in Jordan have mixed work environment in general, yet, the three types of nursing work environments are present; favorable, mixed and unfavorable work environment. Most nursing work environments in Jordan suffer of low levels of staffing and resources adequacy and borderline of nurses' participation in hospital's affair. The results of this study revealed different factors to enhance favorable work environment: using effective staffing levels compatible to daily census, focus on holistic patient care either through total patient care or team work, and using effective leadership style. Nursing work environment in Jordan could be improved if nurse managers and policy makers improve patient to nurse ratio, nursing mix, support services, improve leadership and management, and support professionalism. It is recommended for researchers in nursing to conduct different studies to explore important nursing work environment traits and their

relations to nursing outcomes, this will contribute to efforts of improving nursing care, nurses' job satisfaction and retention, and nursing profession.

Nurses' Job Satisfaction in Jordan

Description of nurses' job satisfaction in Jordan.

Generally, nurses in Jordan were having neutral feelings toward their job; they were moderately satisfied. The results revealed that only 25% of nurses reflected that they were satisfied. An earlier study conducted by Suliman and AbuGharbieh (1996), indicated that nurses were dissatisfied. Fortunately, later studies (Mrayyan 2005 and 2007) indicated that job satisfaction has been improved among Jordanian nurses and the nurses became moderately satisfied. Although, nurses in this study continue to be moderately satisfied regarding their job, but they scored lower job satisfaction than they reflected in Mrayyan's studies. This could be related to the effect of economic depression and inflation with same salaries in most sectors including nursing.

Nurses reported neutral satisfaction in most dimensions of their work: co-workers (health team members), interaction opportunities, scheduling, balance of family and work, professional opportunities, praise and recognition and control and responsibility. However, nurses were dissatisfied with items related to extrinsic rewards (salary, vacations and benefits package) and in some items related to the balance between family and work. According to Herzberg (1959) these factors are part of hygiene factor and their absence leads to physical deprivation and job dissatisfaction. Moreover, the family is important for Jordanians and each individual has many responsibilities toward the nuclear and extended family, in the time where shifts work, long working hours and less flexibility in leave and holidays hindered these responsibilities. However, the influence of this dimension on

nurses in private sector was less, because most nurses there were single and young with limited family responsibilities. Comparing nurses' job satisfaction in Jordan with nurses' job satisfaction in other Arab countries, nurses were found dissatisfied with the same factors relatively; nurses were dissatisfied with extrinsic rewards and professional opportunities in Kuwait (Al-Enezi, Chowdhury, Shah, & Al-Otabi, 2009), as well, nurses' in the West Bank were also dissatisfied with professional opportunity, extrinsic rewards and some work environment characteristics such as distant travelled to work (Abu-Ajamieh, Misener, Haddock & Gleaton, 1996).

Interestingly, the results of this study revealed that psychological rewards had the highest association with job satisfaction whereas, extrinsic rewards and the balance between family and work didn't have great influence on Jordanian nurses' job satisfaction. However, these factors are considered physical needs in Maslow's hierarchy of needs. Thus, the results of this study supported Herzberg's (1959) theory, that job satisfaction and dissatisfaction is not an opposite phenomena; each individual has specific levels of satisfaction and dissatisfaction, hence it is recommended to measure each concept separately.

In addition, most nurses who were found to be satisfied were young and single, and working mainly in the private sector. Single nurses usually have lower family responsibilities than do married nurses, besides working in private sector means lower work load which enhances satisfaction. On the other hand, high responsibilities of married nurses, work overload and salary that didn't match the level of experience led to frustration, decrease in motivation and negative feelings toward their job and profession (Herzberg,

1959; Maslow, 1954). These results were congruent with Halm and colleges (2005), but different from Mrayyan's (2005 and 2007) results.

Department characteristics had also significant influence on nurses' job satisfaction. Nurses who were working in pediatrics wards were more satisfied than other departments. This could be related to the presence of favorable work environment in these areas, besides the nature of patients who are less exigent. This result was congruent with Boyer and colleges (2006).

Also, this study reflected high job satisfaction associated with situational leadership style where the leader actions and behaviors depend on the range of situational elements (Marquis & Huston, 2000) and democratic leadership style. These results supported the results of Look (2002) where effective leadership behaviors had a great influence on nurses' job satisfaction, but they were in contrast to Tzeng's (2002) findings. Also, this study revealed that using total patient care or team care model contributed to nurses' job satisfaction, these models of care enhance professionalism, creativity and job satisfaction among nurses (Marquis & Huston, 2000). And finally as expected, daily census was associated negatively with nurses' job satisfaction. This is because of increased work load, less control over practice, less flexibility and increase stress among nurses.

Important point to mention in this context, the hospitals that found to have favorable work environment and reflected high nurses' job satisfaction in this study were relatively the same hospitals that found to have high turnover rate in Hayajneh and colleges study (2009). This is could be related to some factors in Jordanian nurses' job satisfaction were not measured in the present study. According to Suliman & Abu Gharbieh (1996) nurses were dissatisfied with some of the work environment characteristics (transportation,

childcare facilities), salary, hospital and nursing management support, and professional development, some of which were not measured in this study. Indeed, further studies are recommended to understand the phenomenon of Jordanian nurses' job satisfaction and its related factors. Also, the results of this study suggested further psychometric analysis for the MMSS to become more applicable to the Jordanian Culture.

Variations in Jordanian nurses' job satisfaction.

Nurses in the present study, were neither satisfied nor dissatisfied. Comparing the three health sectors; nurses were neither satisfied nor dissatisfied in both private and educational hospitals, while nurses in public hospitals were dissatisfied. These results were congruent with Mrayyan's studies in 2005 and 2007.

In this study, nurses of private sector scored the highest in job satisfaction in all dimensions, followed by the educational sector and finally, the nurses in the public sector who were dissatisfied. This difference could be related to the differences in the work environments, nurses' characteristics, and financial status of the sector. The three health sectors share the main sources of job satisfaction: co-workers, interaction opportunities and praise and recognition. On the other hand, the main sources of job dissatisfaction differed among the three health sectors.

Nurses in the public hospitals were dissatisfied with extrinsic rewards, the balance between family and work, control and responsibilities and scheduling. Comparing these results to Mrayyan (2005) study, nurses were satisfied with extrinsic rewards in public hospitals more than private. This decline could be related to the slow reform in the public sector compared to the private and educational sectors considering that the financial status

of the sector plays a significant role in the reform process. The dissatisfaction with the other dimensions could be related to work overload in public hospitals. Actually most of these factors are related to the basic needs of Maslow's hierarchy, thus it is important for the MOH to give more attention for these factors and to develop strategies and policies to support nurses needs, which will be reflected positively on nurses commitment (Mrayyan and Al-Faaouri, 2008), decreases turnover (Hayajneh et al. 2009; Greipp 2003), enhances nurses retention (Mrayyan, 2005), and improves the quality of nursing care (Mrayyan, 2006).

In contrary to the public hospitals, nurses in the private hospitals reflected neutral opinion in all dimensions of job satisfaction. However, extrinsic rewards were scored the lowest among all dimensions. Salaries were found to be significant in nurses' job satisfaction and retention (Greipp 2003; Mrayyan, 2005), thus hospital managers have to give more attention to extrinsic rewards in Jordan.

In relation to educational hospitals, nurses scored better job satisfaction than nurses in the public hospitals, but lower than nurses in private hospitals. Nurses in the educational hospitals were dissatisfied with the balance between family and work. However, there were somehow general dissatisfaction feelings regarding the balance between family and work. Family is an important concept of Jordanians and each individual has many responsibilities toward the nuclear and extended family, in the time where shifts work, long working hours and less flexibility in leave and holidays hindered these responsibilities. However, the influence of this dimension on nurses in private sector was less, because most nurses there were single and young with limited family responsibilities. This result supported that of

Mrayyan's (2007) comparative study; the balance between family and work were lower in teaching hospitals compared to non teaching hospitals.

In summary, nurses in the studied Jordanian hospitals reported neutral feelings toward their job. High levels of job satisfaction were found among female, young nurses, who were working in areas used total patient care and situational or democratic leadership style. The main sources of job satisfaction were: co-workers, interaction opportunities and praise and recognition.

Results of this study revealed that nurses were dissatisfied with extrinsic rewards in both public and private hospitals because of poor salaries, poor benefit package compared to educational hospitals were employee get the benefits of university employee. In addition, there were somehow general dissatisfaction regarding the balance between family and work. On other dimension, nurses were dissatisfied with control and responsibility in public hospitals because of workload, non nursing activities and low supportive services and resources in the public sector. Improving nurses' job satisfaction is considered an important issue for all health sectors as it enhances commitment, decreases the turnover rate, enhances nurses' retention and improves the quality of nursing care.

Quality Nursing Care in Jordan

Description of quality nursing care in Jordan.

In Jordan, this is the first study to evaluate the quality of nursing care in different Jordanian hospitals, Mrayyan (2004), conducted a study to determine the quality of nursing care variables from head nurses perspectives in an educational hospital. Mrayyan (2004) indicated that head nurses positively perceived the quality of nursing care. However, nurses in this study reported lower perception of the quality of nursing care level. The quality of

nursing care in this study was generally within satisfactory level; that is nurses meet the minimum accepted level of standards. Although, the quality of nursing care is a different concept of patient satisfaction (Evirn, 2006); patient satisfaction is considered an outcome indicator of the quality of nursing care (Montalvo, 2007). Thus, the results of this study were found to be in correspondence and support Alasad and Ahmad (2003) and Alhusban and Abu Al-Rub (2009) studies; that reported a moderate level of patient satisfaction with nursing care.

The highest score for the quality of nursing care was related to assurance performance, this reflected high nurses' competencies, skills and their aptitude to inspire hope and confidence. These findings were congruent with the findings of Alasad and Ahmad (2003) and Alhusban and Abu Al-Rub (2009). The second highest aspect was the responsiveness which means that nurses in Jordan are willing to help patients and provide prompt care. These results were found to be different from Lee and Yom (2007); O'connor, Trinh and shewchu (2000) and Parasuraman et al. (1988), where reliability was the highest aspect of the quality of nursing care among the five aspects. This may be attributed to cultural variations as the Arab culture encourages a caring behavior.

Based on results of this study, the most important aspects of the quality of nursing care in Jordan were assurance and empathy, while the tangible aspect had the lowest contribution in the quality of nursing care in Jordan. These results were found to be congruent with the results of Chou, et al. (2005); Clark and Clark (2007); Lee and Yom (2007); O'connor, Trinh and shewchu (2000) and Parasuraman et al. (1988). According to Gunther and Alligood (2002) nurses' competences, ethical principles, connecting

knowledge to human life and empathy are the basics for high the quality of nursing care, which supported the results of this study.

In addition, nurses who were working on rotating shifts reported perception of higher quality of nursing care than nurses who were fixed on A-shift. This could be related to the fact that most nurses who are working on A-shift are nurses with long experience and usually have higher expectations for nursing performance and quality level than do young nurses. Also, nurses on A-shift usually have more work load than nurses on other shifts because of various indirect nursing care activities, which decrease the time available for each patient, and focusing on physical needs more than other dimensions, consequently, this might affect the quality of nursing care negatively. The results of this study were congruent with the results of other reported studies (Williams,1998; Gunther and Alligood, 2002 and Mrayyan 2004), where nurses reported that time available was the most important factor for providing the quality of nursing care; decrease in time available is expected to increase uncompleted duties and job stress which reflected negatively on the quality of nursing care. Further, these results were supported by other findings in this study, where the quality of nursing care get higher evaluation by young nurses with less experience than did experienced nurses.

The findings of this study revealed that the higher perceptions of the quality of nursing care were reported in wards with lower daily census. Indeed, this result could be attributed to the fact that stable and lower work load is associated with high quality of nursing care; this result is consistent with that of Hurst (2005) and Sochalski (2001). Moreover, the highest perception of the quality of nursing care in this study was found in pediatrics wards more than other departments. Indeed, the number of staff nurses in pediatrics wards was

higher than other wards and because the patients are accompanied with a family member that shares in care provision. These findings were consistent with findings of Sochalski (2001) and Boyle and colleagues (2006).

In Summary, the quality of nursing care in Jordan was within accepted level compared to standards of care. Yet, according to the literature, quality of nursing care should exceed standards and is a right to all people (Gunther & Alligood, 2002; Parasuraman et al, 1988; Redfern & Norman, 1990). Thus, professionals, policy makers and nurse managers have to work more and more to exceed quality standards and achieve high levels.

Variations in quality nursing care in Jordan.

The findings of this study revealed that the three health sectors in Jordan varied significantly in items related to the quality of nursing care. Both private and educational hospitals reflected satisfactory levels of the quality of nursing care with slightly higher scores in the private sector that is; nurses met quality standards at minimum levels in these hospitals. On the other hand, public hospitals reflected low levels of the quality of nursing care. The findings of this study supported the WHO report by Halasa and colleges (2008) about "mapping health care financing in Jordan" where although the MOH in Jordan was considered as the fourth larger ministry in relation to its budget, yet, it was underfunded, lacked enough skilled man power; technology; and medications which affected the quality of health services negatively.

Within this situation in the public hospitals, nurses reflected accepted levels in three quality aspects: assurance, responsiveness and reliability, whereas, empathy and tangible aspects were found to be below standards, which means poor quality of nursing care in

relation to these aspects. Gunther and Alligood (2002) reported that empathy is a developmental affect that allows the nurse to predict correctly patients' needs and behaviors; it is one of the most important aspects of the quality of nursing care. In addition, Duffy and Hoskins (2003) found that components of the structure such as physical facilities, nurses' appearance, equipments and technology influence the processes and outcomes of the quality of nursing care. Consequently, the MOH must give more attention to the quality of nursing care aspects specially items related to empathy and tangible aspects.

Most private hospitals in Jordan are for profit, they provide care for clients from Jordan and neighboring countries. Private hospitals play a significant role in the development process of the health care delivery system in Jordan through their healthy competition. In this study, private hospitals scored the highest in all quality aspects. Assurance aspect was the best followed by empathy, these results were similar to Chou, et al. (2005); Clark and Clark (2007); Lee and Yom (2007); O'connor, Trinh and shewchu (2000) and Parasuraman et al. (1988).

Educational hospitals were the pioneers in the process of accreditation, at the same time nurses there have high patients' and educational load, this was reflected in the results of this study where all quality aspects were within satisfactory level. However, tangible aspect was scored the lowest among the five quality aspects. Hospitals managers have to focus more on physical structure, technology, equipments and employee appearance.

In summary, the results of this study revealed that the quality of nursing care in Jordan was within satisfactory level in general with various variations between hospitals. Some

hospitals in Jordan were having moderate level of the quality of nursing care; others were having poor quality levels.

The quality of nursing care was the best in assurance and responsiveness aspects; this reflected nurses' competency in their knowledge, skills and behaviors, besides their positive attitudes toward helping patients and providing prompt care. On the other hand, tangibility aspect scored the lowest among all quality aspects in Jordanian hospitals.

However, the quality of nursing care in Jordan was within accepted level compared to standards of care. But, high quality of nursing care must exceed standards. Therefore, professionals, policy makers and nurse managers have to work more and more to exceed quality standards and achieve high levels, with more focus on tangible factors. Generally, high quality of nursing care is a right to all people, and it must be accessible to all, and distributed fairly to all population (Gunther and Alligood, 2002; Redfern & Norman, 1990).

The Relationship between Nursing Work Environment, Nurses Job Satisfaction and Quality Nursing Care

The findings of this study revealed significant strong positive relationship between nursing work environment and the quality of nursing care, this result was congruent with the results of other studies: Kanai-Pak et al. (2008); Mc Cusker et al. (2004); Friese (2005) and Friese et al. (2008). In addition, strong positive correlation was found between nurses' job satisfaction and the quality of nursing care, this relationship supported the results of Laschinger et al. (2001) and Mrayyan (2006). These correlations indicate great influence for nursing work environment and nurses' job satisfaction on the quality of nursing care. A

number of studies had discussed this relationship and supported it: Laschinger et al. (2001); Aiken et al. (2008); Kanai-Pak et al. (2008); Bogaert et al (2009a&b); and Duffield et al. (2010).

Furthermore, the results revealed that the correlation between nurses' job satisfaction and the quality of nursing care was higher than the correlation between nursing work environment and the quality of nursing care. This indicates that nurses' job satisfaction had stronger effect on the quality of nursing care than nursing work environment.

According to the findings of this study, all studied nursing work environment traits had significantly strong relationship with the quality of nursing care. However, "nursing foundation for quality of nursing care" and "manager abilities, leadership and support for nurses" were the strongest work environment traits that had great influence on the quality of nursing care in Jordan. The findings of this study were consistent with the Canadian study of McCusker et al. (2004), but were different from the study reported by Friese (2005) where "staffing and resources adequacy" was the trait that had the most influence on the quality of nursing care. This could be attributed to the differences in the health care delivery systems in different countries. On the other hand, this study revealed that "collegial nurse/physician relations" had the lowest influence on the quality of nursing care in Jordan. This finding was different from Bogaert et al. (2009a) when "collegial nurse/physician relations" was the trait that had the strongest influence on the quality of nursing care.

This study found also, that all nurses job satisfaction dimensions correlated positively with quality nursing. The most important dimensions that had great effect on the quality of nursing care were "nurses' satisfaction with praise and recognition" and "nurses'

satisfaction with professional opportunities". On the other hand, "nurses' satisfaction with extrinsic rewards" had the lowest correlation with the quality of nursing care, which indicates its limited effect. That is, nurses' psychological needs had greater influence on the quality of nursing care than did physical needs.

Interestingly, the results of this study support Duffy and Hoskins (2003) model, that the components of the structure influence the processes of quality nursing care. Nursing work environment characteristics and nurses job satisfaction were considered parts of the structure and process components of quality nursing care that have direct and indirect influence on quality nursing care outcomes.

In summary, examining the relationship between nursing work environment, nurses' job satisfaction and the quality of nursing care reflected significant positive relationships. In regard to the nursing work environment traits; all traits were significantly correlated with the quality of nursing care. Nursing foundation for quality of care was the trait that had strongest effect on the quality of nursing care among all traits, while "collegial nurse/physician relations" was the trait that had the lowest effect on the quality of nursing care. Nurses' job satisfaction had higher correlation with the quality of nursing care than did nursing work environment. Also, "nurses' satisfaction with praise and recognition" and "nurses' satisfaction with professional opportunities" were the job satisfaction dimensions that had the strongest effect on the quality of nursing care. Whereas, "nurses' satisfaction with extrinsic rewards" was the job satisfaction dimension that had the lowest effect on the quality of nursing care.

Quality Nursing Care Predictors

This study was the first in Jordan to predict the quality of nursing care from a set of variables that expected to have influence on the quality of nursing care. According to the findings of this study six variables were accounted for 59% of the quality of nursing care variance: satisfaction with control and responsibility, nursing foundation for quality of care, satisfaction with praise and recognition, satisfaction with professional opportunity, rotating shift work and daily census.

Nurses' satisfaction with control and responsibility was found to be the strongest predictor of the quality of nursing care in this study. That is, increase satisfaction with control and responsibility will increase the quality of nursing care. Three of the six predictors were related to nurses' job satisfaction (satisfaction with control and responsibility, satisfaction with praise and recognition and satisfaction with professional opportunity). According to Muller and McClosky (1990) these dimensions are classified as psychological rewards. This indicate that improving factors related to nurses psychological needs will lead to improve the quality of nursing care in Jordanian hospitals.

The results of this study revealed that nurses' job satisfaction is an influential variable to achieve organizational goals. Nursing managers, policy makers and hospitals' directors in Jordan, must give more attention to factors related nurses' job satisfaction to achieve required outcomes.

Unexpectedly, only "nursing foundation for quality of care" was found to be a strong predictor for the quality of nursing care among all nursing work environment traits. That is; factors as: adopting nursing philosophy, suitable nursing not medical model of care, focus

on nurses' competencies and assured quality through different quality assurance programs influenced the quality of nursing care in Jordan. Thus more attention must be given to the nursing work environment elements that are related to the nursing foundations for quality of care.

The demographic variable that found to influence the quality of nursing care was nursing shift work; nurses on rotating shift predicted the quality of nursing care better than nurses on fixed A-shift. This could be related to differences in the quality of nursing care process according to the situation elements (Williams, 1998). Nurses on A-shift are usually overloaded with direct and indirect nursing care activities. Most of the time nurses on A-shift have less interaction with patients, and they usually don't finish their work, this reflects negatively on the quality of nursing care and create more stress because of uncompleted work (Gunther & Alligood, 2002; Williams, 1998). On the other hand, the process of the quality of nursing care on other shifts is more flexible; nurses focus more on direct patient care activities such as: bedside nursing care, good listening and interaction, which reflected positively on the quality of nursing care evaluation.

The last predictor for quality nursing care was the daily census; the increase in daily census is expected to decrease the quality nursing care level. Increase daily census will increase load of work on nurses and decrease time available for each patient and hence increase job stress and decrease the level of quality of care (Hurst, 2005; Sochalski, 2001).

In summary, the findings of this study suggested that the quality of nursing care could be predicted strongly form six variables: satisfaction with control and responsibility, nursing foundation for quality of care, satisfaction with praise and recognition, satisfaction with professional opportunity, rotating shift work and daily census.

Factors Important to Provide High Quality Nursing Care

The results of content analysis of this study revealed more in depth and unique factors that enhance the quality of nursing care in Jordan which was difficult to obtain in quantitative method.

According to the nurses' there were four factors that influenced the quality of nursing care in Jordan: adequate and competent nurses; competent and supportive management; nursing work environment; and professionalism.

The participants indicated that high quality of nursing care requires the availability of adequate staff nurses to provide enough time and personnel for individualized holistic care. They also suggested that hospitals directors and nurse managers have to focus on developing and implementing continuous education programs, and strategies to enhance nurses' commitment and communication skills. In addition, nurses suggested specialization in nursing as a method to increase competency. These results were found to be similar with the findings of Radwin and Fawcett (2002); different nursing care outcomes were associated positively with the components of health care system and the characteristics of nurses.

The second factor reported by nurses was the nursing work environment; this included the availability of adequate advanced resources and equipment to support nursing care. In addition to the presence of different programs to manage stress such as cognitive therapy and breathing exercise. These findings are congruent with the findings of Kunaviktikul et al. (2001); Radwin and Fawcett (2002); and Thorsteinsson (2002).

Furthermore, nurses reported competent and supportive management as a strong variable in enhancing the quality of nursing care. Competent management was perceived as

one that reflects effective leadership and management, independent nursing department, presence of strict roles and regulation, conformity to policies and standards of care, justice and continuous evaluation for the quality of nursing care. Presence of standards for nursing care and the adherence to these standards was reported in the literature to be effective factor to enhance the quality of nursing care (Parasuraman et al. 1988; Thorsteinsson, 2002).

The last factor reported by nurses was professionalism; nurses reported that professional relationship with health team members, nurses' autonomy, doing nursing jobs only, evidence-based practice and accurate documentation process are factors important to achieve high quality nursing care.

The four factors suggested by nurses as prerequisite for high quality of nursing care were found to be consistent with the structure and process of the quality of nursing care indicators categorized by ANA (1996); where structural indicators include: nurse to patient ratio, staff mix, staff qualifications, total patients hours provided per patients, continuity of care, overtime and nursing staff injury rate. The process indicators include: nurses' job satisfaction, assessment and implementation of patient care and assurance of patient safety. Similar indicators were identified by Kunaviktikul et al. (2001).

In summary, nurses in Jordan reported four variables as the most important for providing high quality nursing care; adequate and competent nurses, nursing work environment, competent and supportive management, and professionalism. Nurses considered these variables as prerequisites or antecedents to provide high quality of nursing care in Jordan. Comparing these variables with the quality of nursing care indicators conducted by the ANA (1996) most of these variables were found to be part of structural

and process indicators. Professionalism was the variable suggested by Jordanian nurses and it wasn't reported in previous literature; hence it was a unique finding for this study.

Study Conclusion

The purpose of this study was to examine the effect of nurses' perception of work environment and nurses' job satisfaction on quality nursing care among different Jordanian hospitals. The results of this study suggested that both nursing work environment and nurses' job satisfaction have direct influence on quality nursing care. These findings were similar to the findings of USA, Europe and Asia and supported the idea of magnetism.

Globally, most studies were focused on staffing issues as a method to enhance quality nursing care. However, this study shades the light on other factors such as: nurses' job satisfaction; nursing foundation for quality of care; nurse manager abilities, leadership and support services; and professionalism.

Nursing work environment in Jordan was found to be generally of the mixed type; however, the unfavorable type existed in some hospitals. Favorable work environment was also reported in some hospitals where high turnover rate was reported in other studies, this either related to favorable traits by Jordanian nurses and not measured in this study, or related to unstudied social factors such as: migration, marriage or change the profession in previous studies.

The quality of nursing care was measured in this study from the perspectives of the nurses. The current study suggested that nurses are the best to evaluate the quality of nursing care better than managers or patients; because the meaning of quality exceeds satisfaction with services, it includes comparing provided care with standards; provide effective and efficient care, and equity distribution of care. Also, this study suggested that

rotating nurses have the ability to evaluate the quality of nursing care better than nurses fixed on specific shift.

Further, the results of the qualitative part of this study -that asked about factors that have influence on the quality of nursing care- was consistent with the results of quantitative part; both agreed that nurses competency and manager abilities and leadership were the most important factors that associated with the quality of nursing care. This agreement supports the validity of this study results.

The current study supported Herzberg (1959) theory which proposed that people work mainly for two reasons: external factors which cover the physical needs to avoid physical deprivation, and for internal factors which reflected psychological meaning. Positive job satisfaction comes as a result of psychological growth feeling, whereas, job dissatisfaction occurs as a result of physical deprivation. Job satisfaction is a different concept from dissatisfaction; they are not antonyms. In addition, this study supported Duffy and Hoskins (2003) model; through positive relationships between all study variables where structural components of the quality of nursing care affected the process components, which in-turn affected the outcomes.

What this study added.

Generally, this study has contributed to the body of knowledge in nursing science in Jordan; it revealed new factors that were not presented in previous studies and have great effect on the quality of nursing care such as: nursing foundation for quality of care; nurse manager abilities, leadership and support services; feeling of psychological growth, and professionalism. This study provides baseline information regarding nursing work environment, nurses' job satisfaction and the quality of nursing care in Jordan. Also, it

supports the use of PES-NWI, MMSS, SERVQUAL instruments in Jordanian culture, and it adds to the global literature information about the reliability and validity of these instruments. The findings of this study will help policy makers, nurses' administrators, educators and researchers in their decisions to develop and improve nursing profession in Jordan.

Limitations of the Study

Generally, this study is important for nursing science and profession as it provides nursing researchers, educators and managers with information about factors enhance quality nursing care in Jordan. Furthermore, it is the first study in Jordan that may provide policy makers with information about work environment aspects that need for development. On the other hand, this study had some limitations of using non-probability sampling procedure; it was difficult to use randomization in this study because of large number of target and accessible population. Hence, to overcome the sample method restrictions the researcher used quota sampling rather than direct convenience and larger sample size than calculated one.

The second limitation occurred as a result of not including military hospitals in the study, the decision for military sector exclusion was taken because ethical permission usually take long time for non military personals. In addition, the research setting was restricted to large hospitals only. Specialized and critical care units were also excluded. Hence, the generalizability of this study evidences may be limited. Future, researchers who aim to explore the work environment characteristic must take inconsideration the limitations of this study.

Implications and Recommendations for the Study

The results of this study are important for developing nursing practice, administration, education, and research. The following implications and recommendations focus the light directly on possible areas of development in nursing profession.

Implications and recommendations for nursing practice.

This study has identified strong relationship between nursing work environment and the quality of nursing care. For the most part, nursing foundation for quality of care and nurse manager abilities, leadership and support services had the highest relationship with the quality of nursing care and was the most influence among all work environment characteristics. In addition, nurses reported in their responses to the open ended question that adequate competent nurses and nurse manager competences are the most important factors for the quality of nursing care. This consistency in results move the situation from increase knowledge base in nursing science to real estimate to the competency level for both nurses and nurse managers in Jordan, and then to develop different strategies to improve their level and evaluate it from time to time. According to this:

- Managers must be assigned based on their ability to evaluate performance and improve the work environment and not on the basis of the number of years worked. Nurses who are candidates for any position should pass specific courses in leadership and management at both theoretical and practical level.
- To achieve higher level of nurses' competences, education in-service department in each hospital should provide excessive nursing courses for newly hired nurses, and for nurses in different departments to improve their performance in their area of practice.

- Staffing requirements should be calculated scientifically in order to ensure the appropriate nurse: patient ratio. Nurses need not be assigned to activities that are non nursing in nature. This will assist in maintaining adequate staffing and assist in retaining nurses.
- Nurses' job satisfaction has also, reported to be the strongest variable that influenced the quality of nursing care in this study. Thus, nurse managers are recommended to improve items related to job satisfaction to attract and return nurses. This study suggested that managers should focus on nurses' psychological growth such as praise and recognition, professional development, enhance autonomy and sharing in decisions related to patients care.
- The nurse managers are recommended to enhance collaboration between nurses and other health team members, to discuss patients' problems and plan of care. In this context it is necessary to focus on the idea that nurses must do nursing job only not others work, hence job description and role clearance must be identified for all parties of health team members.
- Nursing work environment is usually stressful because nurses usually deal with acute and chronic diseases, and death issues. Thus, hospitals must include comfortable environment with effective stress management programs.
- It is important to assess presented staffing model and to develop staffing model that support the quality of nursing care. It is important for best quality to meet emotional and psychological patients' needs as well as physical needs, hence nurse managers must develop suitable staffing model that enhance quality.

- Nurse Managers in hospitals are encouraged to adopt an accurate documentation process, and to develop a committee for continuous evaluation and development in the quality of nursing care. This will allow exploring and diagnosing the errors in quality of care early.

Implications and recommendations for policy decisions.

Duffy and Hoskins (2003) in their Quality-Caring Model proposed that structure components are important in promoting high quality nursing care because they affect the delivery of care process and reflect directly on patients' outcomes. In this study; nursing work environment and nurses' job satisfaction items are parts of structure and process component of Quality-Caring Model. According to this, many policy issues could be supported by the results of this study:

- The findings of this study reflected that all hospitals in Jordan have suffered of nursing shortage; policy makers are recommended to develop unified strategies for ethical recruitment, create safe and favorable work environment to attract and return nurses. Also, to increase females' enrollment in the profession; provide special scholarships for females, increase the percentage of female admissions to nursing colleges, and make child care facilities for nurses kids on all shifts- an obligatory item of hospitals accreditation.
- This study findings suggested that experience is not enough to make a staff nurse to be a nurse manager; there must be a prerequisite of theoretical and practical courses of leadership and management art, communication skills, and legal and ethical principles.

- In this study nurses competences were found to be one of the important factors of the quality of nursing care; policy makers may influence the development of nursing qualification exam and specialization after bachelor degree.
- Provide nurses with career development opportunities such as: clinical ladder, specialization, recognition and rewards, participate in scholar activities and sharing in decisions, such strategies might enhance nurses' job satisfaction and might be reflected on the quality of nursing care, in as much as, the results of this study revealed that nurses' job satisfaction; specially the psychological factors have direct influence on the quality of nursing care.
- Policy makers in health sector may adopt the slogan of "high quality nursing care for all" to achieve equity and social justice; they have to develop different strategies and action plans to make this slogan real.

Implications and recommendations for education.

The results of this study suggested that nurse educators should focus on issues related to caring process and providing high the quality of nursing care as the ultimate goal of nursing profession. In addition, give more attention to the affective domain of teaching process that usually found to be neglected or difficult to teach such as attitudes and behaviors.

- Nursing students today are the profession leaders in the future. Thus, contemporary issues related to their profession must be included in their curricula, such as nursing workforce issues: job satisfaction, shortage and turnover. As well, the issues related to nursing work environment such as accreditation, quality management and quality

assurance. Also, issues related to patients' safety, nurses roles and obligations, and nurses' rights must be included in nursing curricula.

- This study uniquely shed the light on the influence the nurse manager has on the quality of nursing care. Hence the nursing curricula must be prepared in a way that enhance leadership and strengthen the management abilities for nursing students. It is not enough to teach the theories of leadership and management; instead students have to apply these theories in real life situations. Nurse educators must give more attention to students' attitudes and communication because it is the soul of nursing profession; the matter is not the number of graduate nurses; it is the quality of those nurses.
- Caring is the core concept of nursing curricula. Nevertheless, most nursing curricula lack of the process for providing the quality of nursing care in different situations. This could be related to lack of information base regarding this issue. However, including variables related to quality of care and its improvement is considered a vital issue in nursing education.
- On the other side, nurses' educators must be chosen according to specific criteria that enhance their work as a role model. Role modeling is an effective method for teaching attitudes and behaviors. In addition, nurse educators are encouraged to use nontraditional teaching methods to cultivate good behaviors. Teaching methods could include but not limited to: role playing, drama, evidence-based and problem-based learning.
- Teachers of graduate studies have the responsibilities to develop curricula for different needed specialization in nursing, and to cooperate with practice areas such

as hospitals in providing courses or lectures to decrease the gap between theory and practice and to enhance evidence-based practice.

Implications and recommendations for research.

Research recommendations are expected to help in continuity of research work and systematic building for the body of knowledge in nursing. Also, it helps in verifying presented body of knowledge. It is important to take inconsideration the current study limitations in future studies.

- The evidences of this study demonstrated positive relationships between nursing work environment, nurses' job satisfaction and the quality of nursing care. This study is considered as a base line study. However, national survey is needed to standup on nursing situation in relation to nursing work environment, nurses' job satisfaction and turnover.
- This study calls nurse researchers in Jordan to conduct qualitative study to understand specific variables of nurses' job satisfaction in relation to Jordanian culture.
- A national study is required to investigate the issue of nursing shortage and immigration the results of which can assist in developing strategies to overcome this problem.
- Further studies are required to assess and measure the quality of nursing care in Jordan, through using different outcomes such as patients' satisfaction, mortality rate, readmissions and nosocomial infections. In addition, it is recommended to conduct further qualitative studies to understand the unique process of providing high quality nursing care in Jordan, and the factors that may enhance quality of care

and compare it to international findings to establish a wider base of knowledge regarding the quality of nursing care.

- Finally, to increase the strength of evidences and to increase the knowledge base, nursing researchers are encouraged to study each nursing work environment trait to explore its influence on nurses and patients outcomes.

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APPENDIX I

The Ethical Approvals for the Instruments

- **Revised Nursing Work Index Permission**

3/22/2010

From: **amberlc@sas.upenn.edu**

Sent: Monday, March 22, 2010 10:32:26 PM

To: r_mudallal75@hotmail.com

4 attachments

Lake&Friese reduced file size.pdf (165.3 KB) , PES-NWI subscales and scoring.doc (27.5 KB) , Practice Environment Scale of the Nursing Work Index.doc (64.5 KB) , RINAH06.02-Lake.pdf (107.5 KB)

Dear Rola,

Thank you for your inquiry. I am replying on behalf of Dr. Lake. The PES-NWI is the updated tool, the cut points are identified in the article we attach (Lake & Friese), Questions 20, 21, 22 are not on the PES-NWI, and the EFA and CFA work are in an earlier publication (Lake 2002). Enclosed please find the instrument, scoring instructions, and an article containing PES-NWI scores for ANCC Magnet hospitals from 1998 in Table 1. Dr. Lake's permission is not needed as the instrument is in the public domain due to its endorsement by the National Quality Forum in 2004 and re-endorsement in 2009: http://www.qualityforum.org/Projects/n-r/Nursing-Sensitive_Care_Measure_Maintenance/Nursing_Sensitive_Care_-_Measure_Maintenance.aspx

However, if you prefer to have Dr. Lake's permission, this email serves as her permission.

Please direct any reply to Dr. Lake at elake@nursing.upenn.edu.

Best wishes,

Amber Calloway for Dr. Lake
Amber Calloway
Research Assistant
Center for Health Outcomes & Policy Research
418 Curie Blvd.
Philadelphia, PA 19104-4217
p: 215-898-4727
f: 215-573-2062

- **MMSS PERMISION**

THE UNIVERSITY OF IOWA
COLLEGE OF NURSING

Permission to use form:

This gives permission to use the McCloskey/Mueller Satisfaction Scale (MMSS) to Rola Husni Mudallal for the purpose as stated in the request dated July 9, 2010.

The instrument may be reproduced in a quantity appropriate for this project.

Signed:

Sue Moorhead

Sue Moorhead, Associate Professor, College of Nursing

Date: July 14, 2010

The University of Iowa
The Center for Nursing Classification & Clinical Effectiveness
College of Nursing 407 NB
Iowa City Iowa 52242 USA

- **SERVQUAL PERMISION**

8/27/2009

From: **Berry, Leonard** (L-Berry@mays.tamu.edu)

Sent: Thursday, August 27, 2009 10:46:26 PM

To: Rola Mudalla (r_mudallal75@hotmail.com)

2 attachments

Alternatiave Scales for Measuring SQ,JR,1994.pdf (1021.7 KB) , SERVQUAL Survey.pdf (187.4 KB)

Dear Rola,

Yes, we are happy for you to use SERVQUAL in your study. You can use the tool with service providers such as nurses rather than patients. You may want to adapt some of the questions to best fit the context of nursing and healthcare.

I am attaching an article with some refinements on SERVQUAL that you may wish to consider and the latest version of the questionnaire. We ask only that you reference our research as the original source of the SERVQUAL scale.

As a nursing student, you may be interested in my recent book, *Management Lessons from Mayo Clinic*. The book is available on Amazon.

Best wishes on your research.

Sincerely,
Len Berry

Dr. Leonard L. Berry
Presidential Professor for Teaching Excellence
Distinguished Professor of Marketing
M.B. Zale Chair in Retailing and Marketing Leadership
Mays Business School
Professor of Humanities in Medicine
College of Medicine Health Science Center
Texas A&M University
4112 TAMU
College Station, TX 77843-4112
U.S.A.
TEL: 979-845-0804
FAX: 979-458-4183
E-mail: BERRYLE@TAMU.EDU
Co-author of *Management Lessons from Mayo Clinic*(McGraw-Hill, 2008)

Appendix II

Dear Nurse;

I'm Rola Mudallal, PhD students in the faculty of nursing, University of Jordan. I am currently undertaking the dissertation study as requirement for graduation. I'm studying the influence of organizational traits on nurses' job satisfaction and the quality of nursing care. The purpose of this study is to examine the influence of organizational traits on nurses' job satisfaction and quality of nursing care from nurses' perception among different types of Jordanian hospitals.

This study is restricted to registered nurses graduated from a four years nursing program, with minimum experience of six months at least in the investigated area. I hope that you will have the time to answer the three questionnaires that measures the three study's variables, in addition to the demographic data sheet. This will take approximately (20-30) minutes. Your answers will be kept anonymous and confidential, and the data will be kept in secure place and destroyed after finishing this study. The Participation is voluntary and you may withdraw at any time without penalty. For any question please contact me on:

Mobile Number: 0777408310

e-mail: r_mudallal75@hotmail.com

or The Advisor: Dr. Fathieh Abu-Mughli

e-mail: fathieh@ju.edu.jo

Thank You for Your Participation

Appendix III

The Practice Environment Scale of the Nursing Work Index

For each item, please indicate the extent to which you agree that the item is PRESENT IN YOUR CURRENT JOB. Indicate your degree of agreement by circling the appropriate number.

		Strongly Disagree	Disagree	Agree	Strongly Agree
1	Adequate support services allow me to spend time with my patients.	1	2	3	4
2	Physicians and nurses have good working relationships	1	2	3	4
3	A supervisory staff that is supportive of the nurses.	1	2	3	4
4	Active staff development or continuing education programs for nurses.	1	2	3	4
5	Career development/clinical ladder opportunity.	1	2	3	4
6	Opportunity for staff nurses to participate in policy decisions.	1	2	3	4
7	Supervisors use mistakes as learning opportunities, not criticism.	1	2	3	4
8	Enough time and opportunity to discuss patient care problems with other nurses	1	2	3	4
9	Enough registered nurses to provide quality patient care.	1	2	3	4
10	A nurse manager who is a good manager and leader.	1	2	3	4
11	A chief nursing officer who is highly visible and accessible to staff	1	2	3	4
12	Enough staff to get the work done	1	2	3	4
13	Praise and recognition for a job well done.	1	2	3	4
14	High standards of nursing care are expected by the administration	1	2	3	4
15	A chief nursing officer equal in power and authority to other top-level hospital executives	1	2	3	4
16	A lot of team work between nurses and physicians.	1	2	3	4
17	Opportunities for advancement.	1	2	3	4
18	A clear philosophy of nursing that pervades the patient care environment.	1	2	3	4
19	Working with nurses who are clinically competent.	1	2	3	4
20	A nurse manager who backs up the nursing staff in decision making, even if the conflict is with a physician.	1	2	3	4
21	Administration that listens and responds to employee concerns.	1	2	3	4

22	An active quality assurance program.	1	2	3	4
23	Staff nurses are involved in the internal governance of the hospital (e.g., practice and policy committees).	1	2	3	4
24	Collaboration (joint practice) between nurses and physicians.	1	2	3	4
25	A preceptor program for newly hired RNs	1	2	3	4
26	Nursing care is based on a nursing, rather than a medical, model.	1	2	3	4
27	Staff nurses have the opportunity to serve on hospital and nursing committees.	1	2	3	4
28	Nursing administrators consult with staff on daily problems and procedures	1	2	3	4
29	Written, up-to-date nursing care plans for all patients.	1	2	3	4
30	Patient care assignments that foster continuity of care, i.e., the same nurse cares for the patient from one day to the next.	1	2	3	4
31	Use of nursing diagnoses.	1	2	3	4

Source: Eileen T. Lake. "Development of the Practice Environment Scale of the Nursing Work Index." *Research in Nursing & Health*, May/June 2002; 25(3): 176-188.

Appendix IV

Mueller/ McCloskey Satisfaction Scale (MMSS)

How satisfied are you with the following aspects of your current job?

Please circle the number that applies.

		Very dissatisfied	Moderately Dissatisfied	Neither Satisfied nor Dissatisfied	Moderately Satisfied	Very Satisfied
1	salary	1	2	3	4	5
2	vacation	1	2	3	4	5
3	benefits package (insurance, retirement)	1	2	3	4	5
4	hours that you work	1	2	3	4	5
5	flexibility in scheduling your hours	1	2	3	4	5
6	opportunity to work straight days	1	2	3	4	5
7	opportunity for part-time work	1	2	3	4	5
8	weekends off per month	1	2	3	4	5
9	flexibility in scheduling your weekends off	1	2	3	4	5
10	Compensation for working weekends	1	2	3	4	5
11	maternity leave time	1	2	3	4	5
12	child care facilities	1	2	3	4	5
13	your immediate supervisor	1	2	3	4	5
14	your nursing peers	1	2	3	4	5
15	the physicians you work with	1	2	3	4	5
16	the delivery of care method used on your unit (e.g. functional, team, primary)	1	2	3	4	5
17	Opportunities for social contact at work	1	2	3	4	5
18	Opportunities for social contact with your colleagues after work	1	2	3	4	5

19	Opportunities to interact professionally with other disciplines	1	2	3	4	5
20	opportunities to interact with faculty of the College of Nursing	1	2	3	4	5
21	opportunities to belong to department and institutional committees	1	2	3	4	5
22	control over what goes on in your work setting	1	2	3	4	5
23	Opportunities for career advancement	1	2	3	4	5
24	recognition for your work from superiors	1	2	3	4	5
25	Recognition of your work from peers	1	2	3	4	5
26	amount of encouragement and positive feedback	1	2	3	4	5
27	Opportunities to participate in nursing research	1	2	3	4	5
28	Opportunities to write and publish	1	2	3	4	5
29	your amount of responsibility	1	2	3	4	5
30	your control over work conditions	1	2	3	4	5
31	your participation in organizational decision making	1	2	3	4	5

Source: The University of Iowa
The Center for Nursing Classification & Clinical Effectiveness
College of Nursing 407 NB
Iowa City Iowa 52242 US

- **What is your overall evaluation of your job satisfaction?**

(Very Poor) (Very good)

0 1 2 3 4 5 6 7 8 9 10

Appendix V

The SERVQUAL

For each item, please indicate the extent to which you agree that the item is PRESENT IN YOUR CURRENT JOB. Indicate your degree of agreement by circling the appropriate number.

(1 = very much below standards, 2= below standards, 3 = match standards at minimum level, 4= above standards, 5 = very much above standards).

1	The nursing staff of this hospital use modern looking equipment.	1	2	3	4	5
2	The physical facilities at this hospital are visually appealing.	1	2	3	4	5
3	Nurses at this hospital are neat in appearance.	1	2	3	4	5
4	Materials associated with the care (such as pamphlets) are visually appealing in this hospital.	1	2	3	4	5
5	When a member of nursing staff promises to do something by a certain time, he or she will do so.	1	2	3	4	5
6	When a patient has a problem, the nursing staff show a sincere interest in solving it.	1	2	3	4	5
7	The nursing staff perform treatment and care correctly the first time.	1	2	3	4	5
8	The nursing staff provide care at the time they promise to do so.	1	2	3	4	5
9	The nursing staff are competent in providing accurate care.	1	2	3	4	5
10	The nursing staff tell patients exactly when treatments will be performed.	1	2	3	4	5
11	The nursing staff give prompt care to patients.	1	2	3	4	5
12	The nursing staff are always willing to help patients.	1	2	3	4	5
13	Te nursing staff are never too busy to respond to patients' requests.	1	2	3	4	5
14	The behavior of nurses in this hospital instills confidence in patients.	1	2	3	4	5
15	Patients of this hospital feel safe while receiving nursing care.	1	2	3	4	5
16	The nursing staff in this hospital are consistently courteous with patients.	1	2	3	4	5
17	The nursing staff in this hospital have the knowledge and skill to respond to patients' questions.	1	2	3	4	5

18	The nursing staff in this hospital give patients individual attention.	1	2	3	4	5
19	This hospital's visitation hours are convenient to all patients and their families.	1	2	3	4	5
20	Nurses at this hospital are expected to give patients personal attention.	1	2	3	4	5
21	The nurses have the patients' best interests at heart.	1	2	3	4	5
22	The nursing staff understand the specific needs of their patients.	1	2	3	4	5

Original Source: Dr. Leonard L. Berry
Presidential Professor for Teaching Excellence
Distinguished Professor of Marketing
Texas A&M University
U.S.A.

Please, answer the following two questions:

- **What is your overall evaluation of the quality of nursing care in your department?**

(Very Poor) (Very good)

0 1 2 3 4 5 6 7 8 9 10

- **According to your opinion, what factors enable or help in the providing quality nursing care?**

____

____

____

____

Appendix VI

Nurse's Demographic Data

<u>Instruction:</u> Please complete the following demographic section by checking the appropriate answer about yourself.

1. Gender:

1. Male 2. Female

2. Marital status:

1. Single 2. Married

3. Separated/Divorced 4. Widowed

3. Shift worked:

1. Day (12 hours) 2. Night (12 hours) 3. A (8 hours)

4. B (8 hours) 5. C (8 hours) 6. Rotating (A, B, C)

4. Time commitment for your work:

1. Full-time 2. Part-time

5. Your level of education:

1. Diploma 3. Master
2. Baccalaureate 4. Doctorate

6. Your age is: ………….years.

7. Your nursing experience is: ………… years.

<u>Instructions</u>: Please answer the following questions about your current department.

1. **What is the type of your hospital?**
   1. Governmental 2. Educational 3. Private.

2. **How would you best describe the type of your department?**

1. General Medical Ward
2. General Surgical Ward
3. Obstetric / Maternity Ward
4. Pediatric Ward
5. Other: (Please describe): …………………………

9. What is your department average daily census? ....Patients

<u>**Note**</u>: daily census is the number of inpatients or occupied beds in your department.

10. Which best describes the model of nursing care provision?

1. **Total Patient Care**: (one nurse is responsible for the holistic care of each patient assigned to her/him)
2. **Team**: (patient care assigned by the in-charge nurse or leader; the nursing team is responsible for holistic patient care)
3. **Functional**: (nurses are assigned to a number of patients on the basis of tasks)
4. **Unclear**

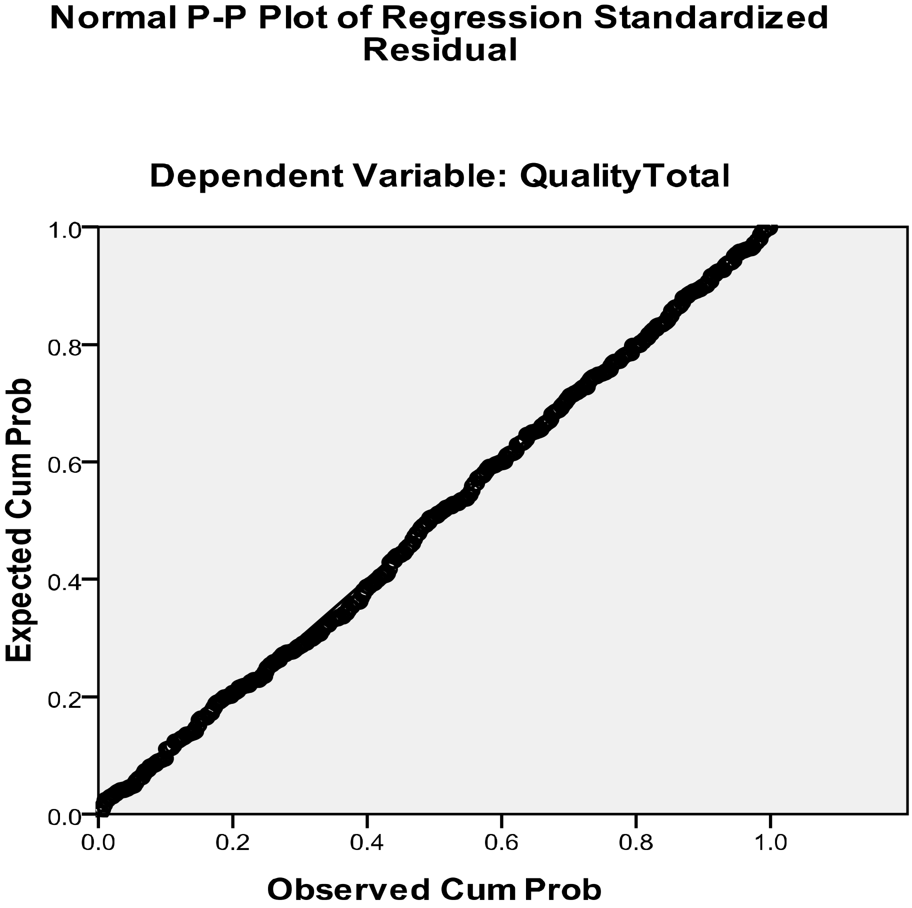
11. Which best describes the leadership style in your department?

1. Autocratic : (manager controls any decision without consulting nurses)
2. Democratic: (manager shares decision-making with nurses)
3. Delegative: (manager allows the employees to make the decisions, but he/she is still responsible for the decisions that are made)
4. Situational: (manager makes decisions with participation of nurses based on situational factors)

Thank You for Your Participation

Appendix VII

The Relationship between Observed Scores of Quality Nursing Care and Predicted Scores by the Prediction Model



تأثير بيئة العمل التمريضي و الرضى الوظيفي للممرضين على نوعية الرعاية التمريضية المقدمة من وجهة نظر الممرضين

اعداد
رولا حسني ابراهيم مدلل

المشرف
الدكتورة فتحية أبومغلي

المشرف المشارك
الدكتورة جو بوث

ملخص

هدف الدراسة: دراسة تأثير بيئة العمل التمريضي و الرضى الوظيفي للممرضين على نوعية الرعاية التمريضية المقدمة من وجهة نظر الممرضين.

أهمية الدراسة: يواجه التمريض في الاردن تحديات في زيادة الطلب على الخدمات الصحية تزامنا مع نقص في عدد الكفاءات التمريضية العاملة و خاصة الاناث. ان نوعية الرعاية التمريضية المقدمة ليست مسؤولية الممرضين وحدهم، فعوامل بيئة العمل و الرضى الوظيفي يتوقع ان يكون لها تأثير كبير على نوعية الرعاية التمريضية المقدمة.

طريقة البحث: دراسة وصفية، ارتباطية و مقارنة. تم جمع بيانات هذا البحث من خلال توزيع استمارات:

The Practice Environment Scale of the Nursing Work Index ، SERVQUAL
Mueller/McCloskey Satisfaction Scale على عينة ملائمة مكونة من ٤٠٨ ممرضين قانونين من مختلف القطاعات: حكومي، خاص، و تعليمي.

النتائج: اتفق المشاركون في هذه الدراسة بشكل عام على مستوى متوسط لكل من: بيئة العمل التمريضي (٢,٥٥)، مستوى الرضا الوظيفي (٢,٧٨) و نوعية الرعاية التمريضية (٢,٨٧) مع وجود فوارق احصائية بين القطاعات الصحية الثلاث. كما وجد ان عوامل مثل: رضى الممرضين عن مسؤوليتهم و قدرتهم على السيطرة، التأسيس التمريضي لنوعية الرعاية الصحية ، مستوى رضاهم عن الثناء و الإعتراف بجهودهم، الرضى عن الفرص المهنية المتوفرة، بالاضافة الى العمل بالمناوبات و التعداد اليومي للمرضى كانت مسؤولة عن تفسير ٥٩% من مستوى الرعاية التمريضية مما يدل على اهميتها.

الخلاصة: تشير النتائج إلى أنه يمكن تحسين نوعية الرعاية التمريضية إذا أخذ مسؤولي التمريض وصانعي السياسات في اعتبارهم العوامل المتصلة ببيئة العمل التمريضي والرضى الوظيفي للممرضين. يمكن اعتماد نتائج هذه الدراسة في تطوير التمريض في الميدان العملي والتعليم والإدارة والبحث.